Series 1957, No. 8

Issued October 1960

Soil Survey
DARLINGTON COUNTY
South Carolina

United States Department of Agriculture
Soil Conservation Service
In cooperation with
South Carolina Agricultural Experiment Station

HOW TO USE THE SOIL SURVEY REPORT

THIS SURVEY of Darlington County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; serve as a reference for students and teachers; aid foresters in managing woodlands; help county planning or development boards to decide on future development of the area; and add to the soil scientist's fund of knowledge.

In making this survey soil scientists walked over the fields and woodlands. They dug holes and examined surface soils and subsoils; measured slopes with a hand level; noticed differences in the growth of crops, weeds, and brush; and, in fact, recorded all the things about the soils that they believed might affect their suitability for farming, engineering, and related uses.

The scientists plotted the boundaries of the soils on aerial photographs. Then, cartographers prepared from the photographs the detailed soil map in the back of this report. Fields, woods, roads, and many other landmarks can be seen on the map.

This soil survey is part of the technical assistance furnished by the Soil Conservation Service to the Darlington County Soil Conservation District. Fieldwork on this survey was completed in 1957. Unless otherwise indicated, all statements refer to conditions at the time the survey was in progress. The picture on the cover shows a typical landscape in Darlington County.

Locating the soils

Turn to the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show what part of the county each sheet of the large map covers. To locate your farm on this index map, look for roads, streams, towns, and other familiar landmarks. When you have determined the correct sheet of the large map, you will note that the soil areas are outlined and that each soil is designated by a symbol. All areas marked with the same symbol are the same kind of soil.

Suppose, for example, the area you have located on the map has the symbol NfA. The legend for the detailed map shows that this symbol identifies Norfolk fine sandy loam, level phase. This soil and all others mapped in the county are described in the section, Soil Series and Mapping Units. The Guide to Mapping Units at the back of the report gives the map symbol for each soil, the name of the soil and the capability unit and woodland group in which it has been placed.

Finding information

Some readers will be more interested in one part of the report than another, for the report has special sections for different groups, as well as sections that may be of value to all.

Farmers and those who work with farmers will want to refer to the section, Soil Series and Mapping Units, to learn about the soils on their farm. They can then turn to the section, Management of the Soils, to find how these soils can be managed and what yields can be expected. Within the section the soils are placed in capability units, or groups of soils that respond in about the same way. The last two parts of the same section show the yields of certain crops that can be expected under two levels of management and the relative suitability of the different soils for specified crops.

Foresters and others interested in woodlands can refer to the section, Use of Soils for Woodland. This section tells what hazards are involved in growing trees on the different soils and what yields can be expected from the most important kinds of pine trees.

Engineers will find useful information in the section, Engineering Properties of the Soils, which evaluates the mapping units in terms of soil mechanics. The tables in that section describe the texture of the soils, drainage, and other characteristics that affect engineering.

Soil scientists will find information about how the soils were formed and how they were classified by reading the section, Formation and Classification of the Soils.

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest. Those not familiar with the county may want to refer to the section, General Soil Areas, which gives a broad summary of the soils in the county. They may also want to refer to the section, Additional Facts About the County, where information about the settlement and development of the county and facts about the climate and agriculture are given.

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Series 1957, No. 8

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SOIL SURVEY OF DARLINGTON COUNTY, SOUTH CAROLINA

REPORT BY W. LEE COLBURN, SOIL CONSERVATION SERVICE

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UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

ARLINGTON COUNTY is mainly agricultural. The chief cash crops are cotton, tobacco, and small grains. Corn and hay are grown as feed for livestock. Almost half of the county is in woods. Forest products are increasing in importance as a secondary source of income.

The county is in the northeastern part of South Carolina (fig. 1). It has a total land area of 545 square miles, or 348,800 acres. The Pee Dee River forms the eastern boundary, and the Lynches River and Lee County form the western boundary. On the north the county is bounded by Chesterfield County, and on the south, by Florence County. Darlington, the county seat, is along Black Creek in the southeastern part of the county.

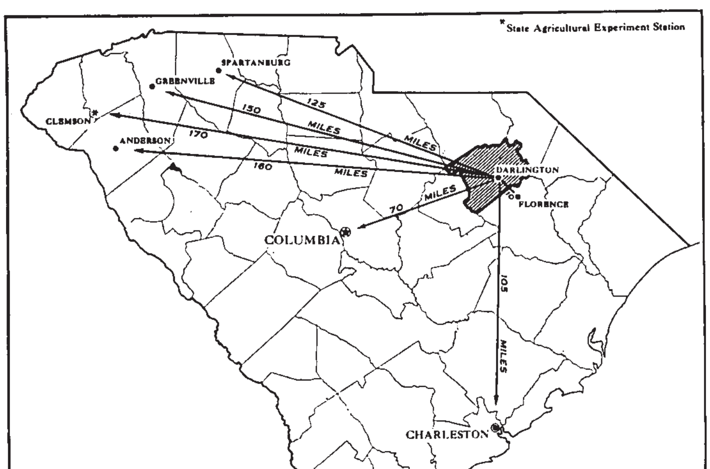

Figure 1.—Location of Darlington County in South Carolina.

General Soil Areas

The general patterns of soils in Darlington County can be described with reference to 11 general soil areas. These areas are outlined on the general soil map in the back of this report. The map is not sufficiently detailed to be useful in studying the soils of a particular farm. It will be helpful in obtaining general information about the soils or in obtaining a broad picture of the county's agriculture.

Each area is made up of several different soils that occur in a characteristic pattern. In most places the pattern is related to the nature of the soil materials and to the shape of the land surface. The general areas of this county are discussed in the following pages.

Area 1

Very poorly drained, nearly level soils on flood plains of the Lynches River and Black Creek: Wehadkee-Okenee

The soils of the Wehadkee and Okenee series are predominant in this general soil area. These soils occur along the Lynches River and Black Creek and are flooded frequently. The Wehadkee soil occurs along, and parallel to, the streams. Part of the acreage occupied by the Okenee soil is on the first terraces between the Wehadkee soil and the second terraces, and part is on the outer edges of the second terraces.

The surface layer of the Wehadkee soil ranges in texture from grayish-brown silt loam to fine sandy loam. The subsoil is grayish-brown silty clay loam. The Okenee soil has a thick, black organic surface layer of loam or sandy loam and a subsoil consisting of gray, sandy clay loam.

Most of this area is in trees. The trees are mainly hardwoods, but there is a scattering of longleaf and loblolly pines. The soils are wet. Consequently, the trees can be harvested only during dry periods. They are used for pulpwood and veneer. If drained, the soils are excellent for pasture. In most places, however, suitable drainage outlets are not available.

Area 2

Well-drained, gently sloping to steep soils of the Sand Hills: Norfolk-Vaucluse

The soils of the Norfolk and Vaucluse series are predominant in this general soil area. The soils are mainly on broad, gently sloping hilltops or on the steep breaks to the streams that drain the area. Other soils, formed in mixed alluvium, occur in long, narrow bands along the streams. The areas on the hilltops are as large as 300 acres in some places, but the breaks to the streams are abrupt and narrow.

Typically, the Norfolk soils of this area occur on the hilltops along with a small acreage of Ruston soils. The Vaucluse soils are on the steep breaks between the hilltops

and the streams. Small areas of Gilead soils and of gently sloping and sloping land, sandy and clayey sediments, also occur on the breaks to the streams. Mixed alluvial land is at the bases of the steep slopes.

The Norfolk are the most extensive soils in the area. They have a shallower profile than that of the Norfolk soils in other parts of the county. Their surface layer is grayish-brown sandy loam, 15 to 30 inches thick. It overlies a subsoil of yellow sandy loam or sandy clay loam. The Ruston soils are similar to the Norfolk soils, but they have a yellowish-red or red subsoil.

The surface layer of the Vaucluse soils ranges from gray sandy loam to loamy sand in texture and from 4 to 30 inches in thickness. It is underlain by a reddish-brown subsoil of brittle, cemented sandy loam or sandy clay loam through which water moves slowly. In contrast, the subsoil of the Gilead soils is slightly cemented and ranges from yellow to reddish yellow in color. The mapping units classified as gently sloping and sloping land, sandy and clayey sediments, have a thin, gray surface layer and a tough, varicolored substratum that is slowly permeable.

Most of the soils on the hilltops in this area are well suited to tillage and are used for general farm crops. In most places, however, terracing is needed and grassed waterways should be provided to prevent erosion. The steep slopes are mostly in trees grown for pulpwood or for timber.

Area 3

Droughty, nearly level to steep soils of the Sand Hills: Lakeland-Vaucluse-Gilead

This general soil area is hilly. The soils are mainly on broad, gently sloping hilltops, on steep hillsides, on gentle foot slopes, or in narrow draws. The soils have a thick surface layer that ranges in texture from sand to sandy loam. Numerous drainageways and several small streams originate in this area. Figure 2 shows the relationship of the soils in the area to the landscape.

The Lakeland are the most extensive soils in this area. They are on hilltops and are excessively drained. Their surface layer is grayish sand, and their subsoil is pale-yellow to yellowish-brown sand. A small acreage consisting of widely scattered areas of Norfolk and Eustis soils also occurs on the hilltops.

The Vaucluse soils are also extensive. They are predominant on the steep slopes between the hilltops and the foot slopes. They are well drained and have a surface layer of gray sandy loam. Their subsoil ranges from reddish yellow to reddish brown in color and from sandy loam to sandy clay loam in texture. Small areas of gently sloping and sloping land, sandy and clayey sediments, also occur on the side slopes. The profiles of these mapping units are shallow. They vary in thickness and in color and texture.

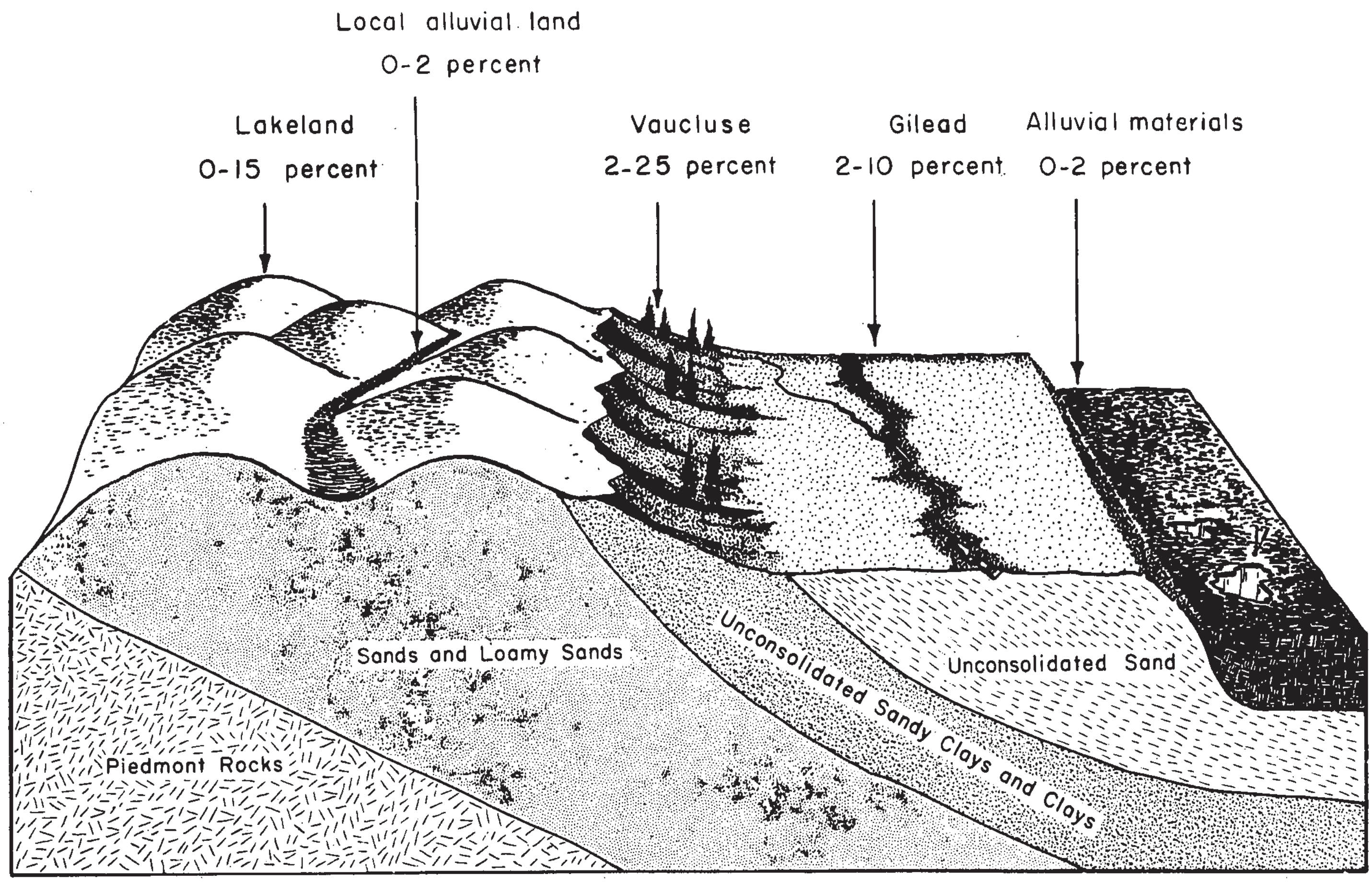

***Figure 2.*—Major soil series on the Sand Hills of the Coastal Plain in Darlington County and their relationship to the landscape. The typical slope range is given for each series.**

The Gilead soils are on the foot slopes. They are well drained and have a yellow to reddish-yellow subsoil of sandy clay loam. The Plummer and Rutlege soils, which are very poorly drained, occur at the heads of drainageways. Mixed alluvial land is in the drainageways.

Most of the farming in the area is on a part-time basis. Only a small acreage on the gently sloping hilltops or on foot slopes is used for crops or pasture. Most of the area is in trees. Turkey and blackjack oaks are the principal trees growing on the hilltops, but there are small, scattered stands of longleaf pine. On the side slopes the main trees are loblolly and longleaf pines with a thin undergrowth of scrub oak. Blackgum and other kinds of gum trees grow in the draws. The town of Society Hill is in this general soil area.

Area 4

Poorly drained to very poorly drained, nearly level soils: Coxville-Rutlege

This general area is made up mainly of nearly level Coxville and Rutlege soils. Within the area are many flat, oval-shaped depressions that are rimmed with sand on the southern and eastern sides. Some of these depressions are as large as 100 acres.

The Coxville soils occur in the smaller depressions and in the broad areas between. They are deep soils and are poorly drained. Their surface layer ranges from black to gray in color and has a texture of sandy loam. It overlies a subsoil of gray sandy clay loam or sandy clay that is mottled with red in many places.

The Rutlege soils occur in the larger depressions and along the streams that drain the area. These soils are very poorly drained. They have a thick, black, organic surface layer of loamy sand that is underlain, at depths of 10 to 24 inches, by gray loamy sand. The Rutlege soils have a high water table during most of the year. They lack suitable outlets and are difficult to drain.

The long, narrow strips between the Coxville and Rutlege soils are occupied by nearly level Norfolk, Dunbar, and Lakewood soils. The Norfolk soils are deep and well drained; the Dunbar soils are somewhat poorly drained; and the Lakewood soil is excessively drained. The Norfolk and Dunbar soils are productive, but the Lakewood soil, on the southern and eastern rims of the depressions, is sandy and is not well suited to crops.

Most of this general soil area is in cutover longleaf and loblolly pines grown for sawtimber and pulpwood. Many of the wooded tracts of Rutlege soils have been burned over repeatedly. Little timber of commercial value has been left, and native grasses, shrubs, and briers cover the areas. Some of the wetter soils are covered by stands of cypress.

A small acreage of Coxville soils has been cleared and drained. It is used for general farming as are the Norfolk and Dunbar soils. The Lakewood soil is mostly covered by scrub oaks, but there are a few, scattered stands of pine.

Area 5

Well-drained nearly level soils on high, broad slopes, and poorly drained soils in the lower, level and depressed areas: Norfolk-Coxville

Nearly level Norfolk and Coxville soils are predominant in this general soil area. The area is in the central and north-central parts of the county. It is dissected by the many small streams that originate within its boundaries. The streams have not cut deeply; between them are large, flat plains occupied by well-drained soils. Within the plains are many small, oval-shaped depressions in which the soils are poorly drained. At a slightly lower elevation than the plains are broad, flat areas. The relationship of the soils to the landscape is shown in figure 3.

Typically, the Norfolk soils occur on broad, nearly level to gently sloping plains between the streams and in long, narrow, sloping to strongly sloping strips bordering the streams. The soils are well drained and are deep and productive. Their surface layer ranges from gray to brownish gray in color and has a texture of sandy loam. Their subsoil ranges from yellow to yellowish brown in color and from sandy loam to sandy clay loam in texture.

The Coxville soils occur in the nearly level depressions and in broad, flat areas that lie at lower elevations than the Norfolk soils. Generally, these flat areas occur at the heads of small streams, but some are in narrow bands along the streams. The Coxville soils are poorly drained and have a black to gray surface layer of sandy loam. Their subsoil is gray, mottled in places with red, and ranges from sandy clay loam to sandy clay in texture. These soils are acid.

In some of the depressions, between areas of the Norfolk soils, are nearly level soils of the Dunbar, Goldsboro, Portsmouth, and Plummer series. The Dunbar and Goldsboro soils are productive, but they have mottled subsoils that indicate impaired natural drainage. The Portsmouth and Plummer soils are very poorly drained.

The Portsmouth soils have a thick, organic surface layer; their subsoil is gray and ranges from sandy clay to sandy clay loam in texture. The Plummer soil has a surface layer that ranges from black to gray in color and from 10 to 15 inches in thickness. It has a subsoil of gray sandy loam.

Most of the county's two largest towns—Darlington and Hartsville—are in this general area. Most of the livestock farms in the county are in the area, and much of the rest of the acreage is used for general farming.

The Norfolk are among the most productive soils of the county; about 95 percent of their acreage is used for crops. Because the Norfolk soils are generally nearly level, the risk of water erosion is slight. On the large, broad, flat areas of Norfolk soils, however, there is some risk of wind erosion, but the erosion can be controlled by the use of windbreaks. The gently sloping and sloping Norfolk soils need to be terraced and grassed waterways used to protect them from erosion by water. The strongly sloping Norfolk soils are mostly in trees.

About half of the acreage of Coxville soils is used for crops and pasture, and the rest is in trees grown for pulpwood and timber. The pastures on the Coxville soils are among the best in the county.

Of the less extensive soils in the area, the Dunbar and Goldsboro are used mainly for general farming. The Portsmouth and Plummer soils are almost all in trees.

Area 6

Well-drained to poorly drained, strongly sloping to nearly level soils: Norfolk-Dunbar-Coxville

Norfolk, Dunbar, and Coxville soils make up most of this general area. Typically, the soils occupy broad, nearly level to gently sloping sites or the narrow, sloping to strongly sloping breaks that are parallel to the streams. Within the nearly level to gently sloping sites are flat, meandering or oval-shaped depressions. The area has been dissected deeply by the larger streams.

The Norfolk soils are generally deep and well drained. They occupy the broad, nearly level sites and gentle slopes, or are in the sloping to strongly sloping areas along the streams. The Coxville soils, which are poorly drained, are in the oval-shaped depressions and in the lower, meandering depressions. The Dunbar soils are somewhat poorly drained; they occur between the Norfolk and Coxville soils.

Some small areas of Lynchburg and Goldsboro soils, which are less extensive, occupy positions similar to those occupied by the Dunbar soils. The Lynchburg soil is somewhat poorly drained and has a mottled, gray subsoil. The Goldsboro soil is moderately well drained. Nearly level mixed alluvial land is in strips along the streams.

All of this area is used for general farming or for livestock farms. Some of the best livestock farms in the county are in this general soil area. About half of the acreage is in crops and pasture, and the rest is in trees.

Area 7

Well-drained to poorly drained, nearly level soils: Marlboro-Dunbar-Coxville

Soils of the Marlboro, Dunbar, and Coxville series are predominant in this general soil area. About half of the acreage is in the broad, nearly level, meandering depressions, and the rest is on nearly level to gently sloping, slight ridges. A few small streams originate along the outer edges of this area. Figure 4 shows the relationship of the major soils in the area to the landscape.

The Marlboro soils, which are very productive, are on the higher ridges. They are nearly level to gently sloping and are well drained. These soils have a grayish-brown to brown surface soil, about 6 to 12 inches thick, consisting of sandy loam. The subsoil is yellowish-brown sandy clay.

The Coxville soils are poorly drained and occur in the lower depressions. They have a subsoil consisting of gray sandy clay loam or sandy clay mottled with red. The Dunbar soils are nearly level, and they are somewhat poorly drained. They occur in depressions between the Marlboro and Coxville soils. Their subsoil consists of gray to olive sandy clay that is mottled in the lower part.

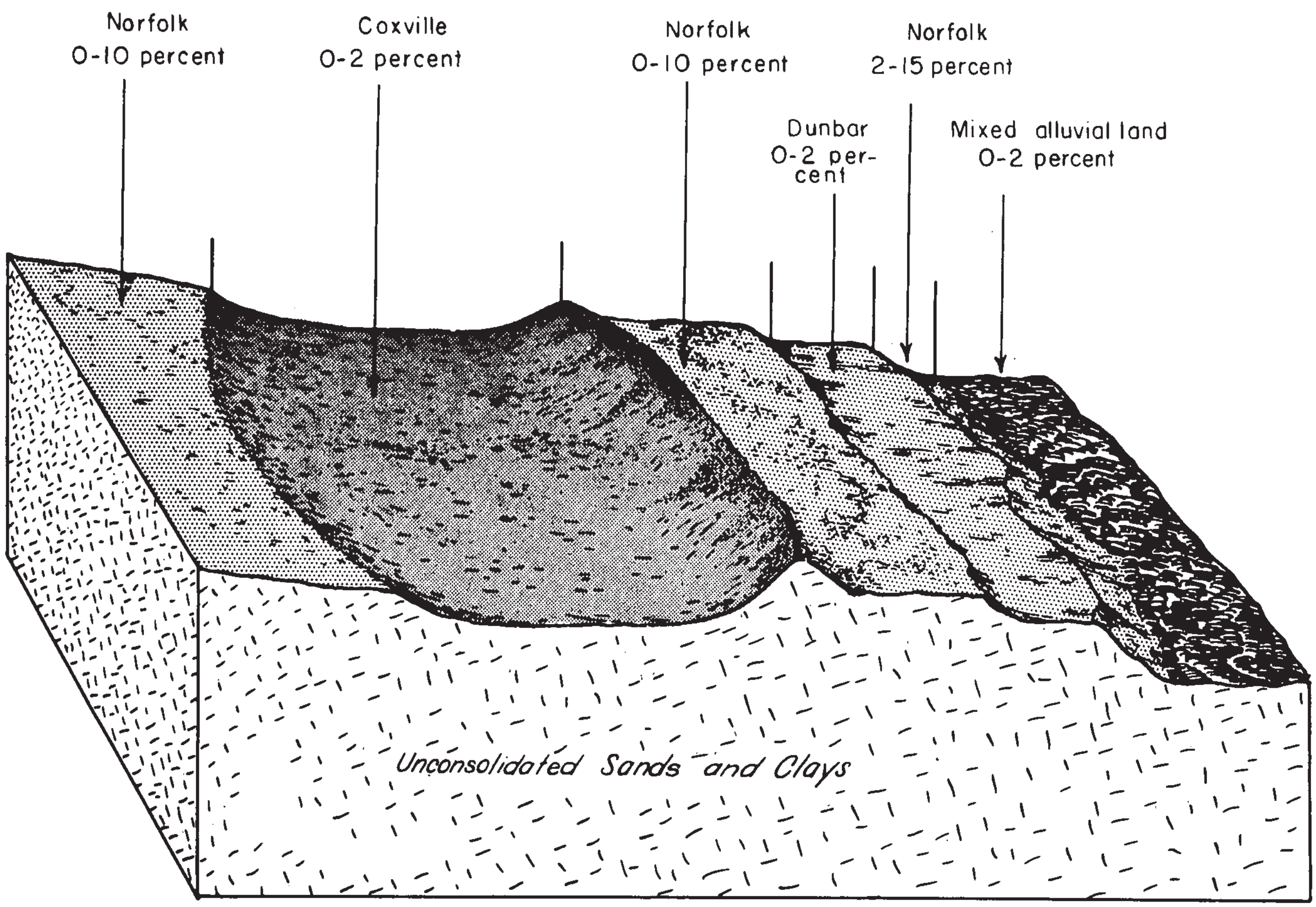

Figure 3.—**Major soil series in general soil area 5 and their relationship to the landscape. The typical slope range is given for each series.**

A small acreage of Goldsboro, Lynchburg, and Norfolk soils also occurs in this general area. Of these soils, the Norfolk are well drained but the Goldsboro and Lynchburg have impaired drainage and a mottled subsoil.

Except for acreage occupied by the town of Lamar, this area is used for general farming. The Marlboro and Norfolk soils are generally used to grow tobacco, cotton, corn, and small grains. About one-half of the acreage of Dunbar soils and two-thirds of the acreage of Coxville soils is in trees; the rest is in crops or pasture.

Area 8

Well-drained, nearly level to strongly sloping soils: Ruston-Norfolk

The principal soils in this general soil area are those of the Ruston and Norfolk series. The soils are nearly level to strongly sloping. In the hilly areas the hills have nearly level to gently sloping tops and narrow, sloping to strongly sloping sides that lead to the streams that drain the area.

The Ruston and Norfolk soils are deep and productive. The Ruston soils are predominant. Their surface layer consists of grayish-brown to brown sandy loam that is 12 to 30 inches thick. Their subsoil ranges from red to yellowish red in color and from sandy clay loam to sandy loam in texture. The Norfolk soils have a surface layer of sandy loam. Their subsoil is yellow to yellowish brown.

Dunbar and Coxville soils, which are less extensive, occur in small depressions in this general area. Mixed alluvial land is in narrow strips along the streams. The Dunbar soils are somewhat poorly drained, and the Coxville are poorly drained.

Most of the area is used for general farming. About one-third of the acreage is in pines grown for timber.

Area 9

Somewhat poorly drained to very poorly drained, nearly level soils on the flood plains of the Pee Dee River: Chewacla-Wehadkee

The Chewacla and Wehadkee soils are predominant in this general soil area. These soils are nearly level; they are likely to be flooded frequently. Figure 5 shows the relationship of the major soils in this area to the landscape.

The Chewacla soil is somewhat poorly drained. It has a subsoil of grayish-brown silty clay that is mottled with yellow and brown at depths of 12 to 15 inches. The Wehadkee soil is in old stream channels and is very poorly drained. It has a subsoil of grayish-brown silty clay loam in which mottling begins in the upper part. Small areas of Kalmia, Flint, and Wahee soils also occur in this general soil area. The Kalmia soils are well drained, but the Flint and Wahee are moderately well drained.

Most of this area is in trees, but a small acreage is in pasture. Hardwoods are predominant on the Wehadkee

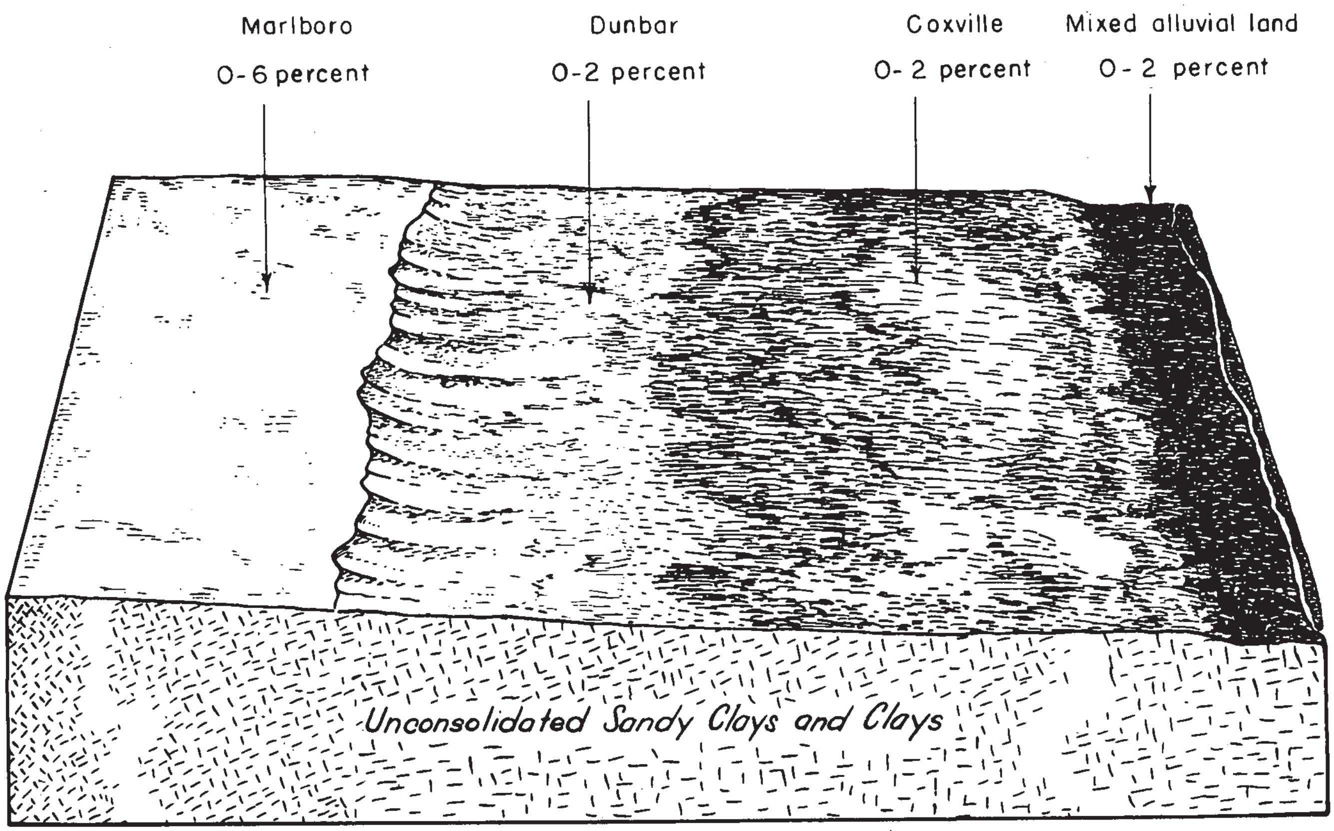

Figure 4.—Major soil series in general soil area 7 and their relationship to the landscape. The typical slope range is given for each series.

soil, and pines, on the Chewacla soil. Most of the area is owned by five or six landowners. Much of the acreage is used as wildlife reservations, particularly for deer. These reservations are managed by hunting clubs.

Area 10

Well-drained to somewhat poorly drained, nearly level soils on stream terraces: Kalmia-Flint-Wahee

Kalmia, Flint, and Wahee soils are the main soils in this general soil area. These soils have formed in materials washed from the Coastal Plain and the Piedmont and are on the second terraces of the Pee Dee River. They occupy broad, nearly level to gently sloping sites or narrow, sloping sites along the streams that cut through the area. The Kalmia and Flint soils are nearly level to sloping, and the Wahee soils are nearly level. The relationship of the major soils in the area to the landscape is shown in figure 5.

The Kalmia soils have a texture of sandy loam and are well drained. Their subsoil is yellow to reddish yellow in color and is nearly free of mottling. In general, the Flint and Wahee soils are moderately well drained, but the drainage of the Wahee soils ranges to somewhat poor. The soils of both these series have mottling in the lower part of the subsoil. The subsoil consists of tough, or brittle, slowly permeable clay or silty clay.

Small areas of Cahaba, Myatt, Independence, and Huckabee soils also occur in this general soil area. The Cahaba soils are well drained and have dark-red to yellowish-red subsoils. The Independence and Huckabee soils are sandy and are excessively drained. The Myatt soil occupies the lowest positions in the area. It is poorly drained and has a gray subsoil.

About 75 percent of the Kalmia, Flint, and Wahee soils is in trees; the trees are grown for timber or pulpwood. The rest of the general soil area is used for general farming and is in crops or pasture.

Area 11

Somewhat poorly drained to poorly drained, nearly level soils: Coxville-Dunbar

This general soil area is made up of Coxville and Dunbar soils. There are no well-defined streams in the area and no definite drainageways. The Coxville soils are at slightly lower elevations than the Dunbar soils. Excess water drains onto them from the Dunbar soils.

The Coxville soils are deep and are poorly drained. They have a gray surface layer of sandy loam. Their subsoil consists of gray sandy clay loam or sandy clay mottled with red.

The Dunbar soils are deep and are somewhat poorly drained. Their surface layer is grayish-brown sandy loam. It overlies a subsoil of olive sandy clay loam or sandy loam mottled with brown and red. The mottles generally begin in the lower part of the subsoil. They increase in size and number with increasing depth.

All of this general soil area is in trees. The trees are grown by farmers engaged in general farming. They are used for timber or for pulpwood.

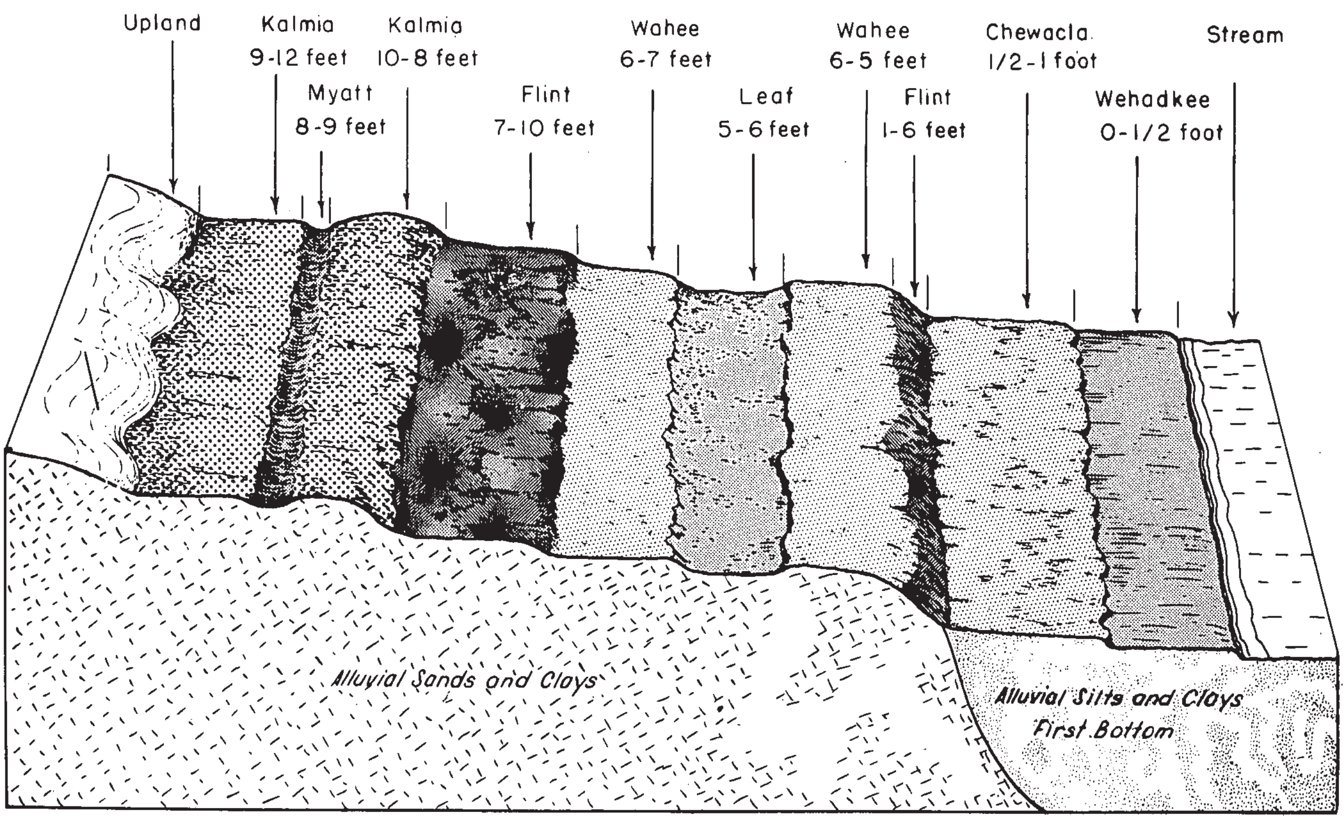

Figure 5.—**Major soil series on the Pee Dee River terrace in Darlington County and their relationship to the landscape.**

Management of the Soils

This section is a general guide to the management of the soils in Darlington County. It does not suggest specific management for individual soils. For detailed information about managing the soils, go to the local staffs of the Extension Service or the Soil Conservation Service, or to the Agricultural Experiment Station at Clemson.

The section has two main parts. In the first, the kinds of soils mapped in the county are placed in capability units. Most of the capability units consist of several soils that are similar; others are made up of only one soil. In each capability unit the soils are listed, the features they have in common are described, suitable crops and other uses are given, and the principal needs for good management are indicated.

In the second part, there are two tables. One shows the estimated average acre yields of certain crops grown on each soil under two levels of management; the other rates each soil in the county according to its suitability for certain crops.

Capability Grouping of Soils

Capability grouping is a system of classification used to show the relative suitability of soils for crops, grazing, forestry, and wildlife. It is a practical grouping based on the needs and limitations of the soils, on the risk of damage to them, and also on their response to management. There are three levels above the soil mapping unit in this grouping. They are the capability unit, subclass, and class.

The capability unit, which can also be called a management group of soils, is the lowest level of capability grouping. A capability unit is made up of soils that are similar in kind of management needed, in risk of damage, and in general suitability for use. The capability unit is represented by a figure, for example 1, 2, or 3, in the classification symbols, such as IIIe–1, IIIs–2, and IIIw–3.

The next broader grouping, the subclass, is used to indicate the dominant kind of limitation. The letter symbol "e" indicates that the main limiting factor is risk of erosion if the plant cover is not maintained; "w" means excess water that retards plant growth or interferes with cultivation; and "s" shows that the soils are shallow, droughty, or unusually low in fertility. In some parts of the country, there is a subclass "c" for the soils that are limited chiefly by a climate that is too cold or too dry.

The broadest grouping, the land capability class, is identified by Roman numerals. All the soils in one class have limitations and management problems of about the same degree, but of different kinds, as shown by the subclass. All the land classes, except class I, may have one or more subclasses.

In classes I, II, and III are soils that are suitable for annual or periodic cultivation of annual or short-lived crops.

Class I soils are those that have the widest range of use and the least risk of damage. They are level, or nearly level, productive, well drained, and easy to work. They can be cultivated with almost no risk of erosion and will remain productive if managed with normal care.

Class II soils can be cultivated regularly but do not have quite so wide a range of suitability as class I soils. Some class II soils are gently sloping; consequently, they need moderate care to prevent erosion. Other soils in class II may be slightly droughty, slightly wet, or somewhat limited in depth.

Class III soils can be cropped regularly but have a narrower range of use than those in classes I and II. These need even more careful management.

In class IV are soils that have greater natural limitations than those in class III, but they can be cultivated for some crops under very careful management.

In classes V, VI, and VII are soils that normally should not be cultivated for annual or short-lived crops but that can be used for pasture or range, as woodland, or for wildlife.

Class V soils are nearly level or gently sloping and are not likely to erode but are droughty, wet, low in supply of plant nutrients, or otherwise unsuitable for cultivation.

Class VI soils are not suitable for crops, because they are steep, droughty, or otherwise limited, but they give fair yields of forage crops, orchard crops, or forest products. Some soils in class VI can, without damage, be cultivated enough so that fruit trees or forest trees can be set out, or special perennial crops or pastures can be seeded.

Class VII soils provide only poor to fair yields of forage or forest products and have characteristics that limit them severely for these uses.

Class VIII consists of soils that have practically no agricultural use. The soils have value as parts of watersheds, and some have value as wildlife habitats or for scenery.

Capability classes, subclasses, and units

The capability classes, subclasses, and units in which the soils of Darlington County are classified are defined in the listing that follows. The use suitabilities and management requirements of the capability units are also discussed. None of the soils in the county are in class VIII.

The soils were assigned to capability units on a statewide basis. Since not all of the capability units in the State are represented in this county, the numbering of the units may not be consecutive. For example, no soils of capability unit IIw–3 are in Darlington County. Therefore, this capability unit is not discussed in this report.

Class I.—Deep or moderately deep, well-drained, nearly level, productive soils. Suitable for intensive, long-time use under cultivation if good farming practices are followed.

- Unit I–1.—Deep or moderately deep, well-drained soils that have sandy surface layers 12 to 18 inches thick and friable subsoils.
- Unit I–2.—Deep, well-drained sandy loam that has a surface layer 6 to 12 inches thick and a subsoil of sticky sandy clay.

Class II.—Soils that can be cultivated with only moderate risk of erosion or that have other moderate limitations.

- Subclass IIe.—Nearly level to gently sloping soils subject to moderate risk of erosion and requiring protection if cultivated.

Unit IIe-1.—Deep or moderately deep, well-drained, gently sloping soils that have friable subsoils.

Unit IIe-2.—Deep, well-drained, gently sloping soil that has a sticky subsoil.

Unit IIe-3.—Moderately deep, moderately well drained to somewhat poorly drained, nearly level soils of stream terraces that have fine-textured subsoils through which water moves slowly.

Unit IIe-4.—Moderately deep, well drained or moderately well drained, gently sloping soils that have cemented subsoils.

Subclass IIw.—Soils with slightly impeded natural drainage that makes them seasonally wet and that restricts their suitability for some sensitive crops.

Unit IIw-1.—Deep, slightly wet, level, local alluvial soils in draws and depressions.

Unit IIw-2.—Deep, somewhat poorly drained or moderately well drained, nearly level soils.

Unit IIw-4.—Deep, well-drained, nearly level soils of the flood plains with a surface layer of fine sandy loam or silt loam.

Subclass IIs.—Nearly level to gently sloping, sandy soils that are slightly droughty and that require simple conservation practices to conserve moisture and prevent wind erosion.

Unit IIs-1.—Nearly level to gently sloping soils that have sandy surface layers 18 to 30 inches thick and friable subsoils through which water moves freely.

Unit IIs-2.—Level or nearly level, sandy soil that has a surface layer 30 to 36 inches thick; subject to leaching and slightly low in fertility.

Class III.—Soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Subclass IIIe.—Sloping soils that erode if not protected.

Unit IIIe-1.—Deep, sloping soils that have friable subsoils and a slight to severe risk of erosion.

Unit IIIe-3.—Sloping, moderately deep soil with a tough clay subsoil through which water moves slowly.

Unit IIIe-4.—Shallow to moderately deep, sloping soils that have slightly cemented subsoils that hinder the movement of water.

Unit IIIe-5.—Deep, slightly droughty, sloping soils that have sandy surface layers 18 to 30 inches thick and friable subsoils.

Subclass IIIw.—Nearly level soils that have very poor to somewhat poor drainage and that need artificial drainage for production of most crops.

Unit IIIw-1.—Somewhat poorly drained soil with a thick surface layer underlain by a subsoil of loamy sand.

Unit IIIw-2.—Poorly drained, deep soils that have subsoils of tough sandy clay or sandy clay loam.

Unit IIIw-3.—Somewhat poorly drained silt loam on flood plains, subject to overflow.

Unit IIIw-4.—Very poorly drained soils with surface layers of black loam underlain by subsoils that have a texture of sand to sandy clay loam.

Subclass IIIs.—Gently sloping, droughty, sandy soils that are subject to leaching and wind erosion.

Unit IIIs-1.—Deep soils that have surface layers of loamy sand 30 to 36 inches thick.

Unit IIIs-2.—Deep, sandy soils subject to severe leaching and wind erosion.

Class IV.—Soils with very severe limitations that restrict the choice of plants but that can be cultivated with special management.

Subclass IVe.—Sloping to strongly sloping soils that are subject to very severe erosion and that need extreme protection if cultivated.

Unit IVe-4.—Shallow to moderately deep, sloping, eroded soil.

Unit IVe-5.—Deep, strongly sloping soil with a surface layer of loamy sand 18 to 30 inches thick.

Subclass IVs.—Sloping, droughty, sandy soils subject to severe leaching.

Unit IVs-1.—Deep, sandy, sloping soils through which water moves rapidly.

Class V.—Nearly level soils that are too wet or too sandy for cultivation.

Subclass Vw.—Wet soils that are very difficult to drain.

Unit Vw-2.—Poorly drained to very poorly drained, sandy, unproductive soils.

Class VI.—Soils with severe limitations that make them generally unsuited to cultivation and that limit their use to pasture or woodland.

Subclass VIe.—Soils that are subject to severe erosion or that are severely eroded.

Unit VIe-2.—Strongly sloping soils that have tough subsoils through which water moves slowly.

Class VII.—Soils unsuitable for cultivation and that have very severe limitations.

Subclass VIIe.—Soils subject to severe erosion or that are severely eroded.

Unit VIIe-2.—Shallow, unproductive soils and soils on strong slopes.

Subclass VIIw.—Soils too wet for cultivation and grazing and difficult to manage as woodland.

Unit VIIw-1.—Very poorly drained, nearly level soils on the flood plains.

Subclass VIIs.—Sandy soils that are too droughty for cultivation and grazing and limited in use as woodland.

Unit VIIs-1.—Gently sloping to strongly sloping, unproductive, sandy soils.

Management by capability units

Soils in one capability unit have about the same limitations and similar risks of damage. The soils in one unit, therefore, need about the same kind of management, though they may have formed from different kinds of parent materials and in different ways. The capability units are described in the following pages. The soils in each unit are listed, and management suitable for all the soils of the unit is suggested.

CAPABILITY UNIT I–1

In this capability unit are deep or moderately deep, well-drained fine sandy loams and sandy loams that have subsoils of friable sandy clay loam. The soils have good structure. They are medium in content of organic matter and in their natural supply of plant nutrients. The soils are moderate in permeability, but they have a low to moderate water-holding capacity. They are medium acid to strongly acid. The following soils are in this unit:

Cahaba fine sandy loam, level phase.
Kalmia sandy loam, level phase.
Norfolk fine sandy loam, level phase.
Norfolk sandy loam, level phase.
Norfolk sandy loam, level thin solum phase.
Ruston fine sandy loam, level phase.
Ruston sandy loam, level phase.

The soils in capability unit I–1 are suited to all the row crops generally grown in the county. They are also suited to Coastal bermudagrass, bahiagrass, crimson clover, and sericea lespedeza grown for hay and pasture.

Row crops can be grown each year. To maintain good yields, however, lime and fertilizer are required. Apply the lime and fertilizer according to needs indicated by soil tests and according to the requirements of the crops to be grown. In addition, turn under a grass or legume crop or a winter cover crop. In large fields plant strips of close-growing crops at right angles to prevailing winds to prevent wind erosion. These soils can be irrigated, but the system used must be designed carefully to prevent losses of soil and water.

Pine trees grow well on these soils, but they must be protected from fire and grazing. Four or five rows of bicolor lespedeza planted along the edges of fields will help to prevent the trees from using nutrients needed for crops. The lespedeza will also provide food and cover for wildlife, especially quail.

CAPABILITY UNIT I–2

Only one soil—Marlboro sandy loam, level phase—is in this capability unit. This soil is deep and well drained. Its surface layer is 6 to 12 inches thick and is underlain by sticky sandy clay. The natural supply of plant nutrients is high. The permeability and rate of infiltration are moderate. The water-holding capacity is also moderate, and, therefore, plant nutrients do not leach out so readily as they do in the soils in capability unit I–1.

This soil is among the most productive of the soils in the county. It is well suited to all the crops generally grown. Tall fescue, dallisgrass planted with whiteclover, bermudagrass planted with annual lespedeza or crimson clover, and sericea lespedeza are among the best plants to seed as forage crops.

If row crops are grown each year, apply large amounts of fertilizer and turn under a winter cover crop of grass or legumes to help maintain good yields. Add lime for all crops. Apply the lime according to needs indicated by soil tests and according to the requirements of the crop to be grown. To prevent erosion, plant windbreaks in large fields at right angles to the prevailing winds. This soil can be irrigated. The irrigation system needs to be designed carefully to prevent losses of soil and water.

This soil is suited to trees, but the trees need protection from fire and grazing. Four or five rows of bicolor lespedeza, planted along the edges of fields, will help to prevent the trees from using plant nutrients needed for crops. The lespedeza will also provide food and cover for wildlife.

CAPABILITY UNIT IIe–1

This capability unit consists of deep, well-drained soils that are slightly eroded. The soils have gray to brown surface layers and red to yellow, friable subsoils. The structure of the soils is good. The content of organic matter is medium, and the natural supply of plant nutrients is medium to high. Permeability is moderate, but the moisture-supplying capacity is low to moderate. The soils are acid. The following soils are in this unit:

Cahaba fine sandy loam, gently sloping phase.
Kalmia sandy loam, gently sloping phase.
Norfolk fine sandy loam, gently sloping phase.
Norfolk sandy loam, gently sloping phase.
Norfolk sandy loam, gently sloping thin solum phase.
Ruston fine sandy loam, gently sloping phase.
Ruston sandy loam, gently sloping phase.

These soils are well suited to cotton, corn, tobacco, small grains, soybeans, and truck crops. They are also suited to bahiagrass, crimson clover, and kudzu grown for grazing, and to Coastal bermudagrass and sericea lespedeza grown for hay or grazing.

To prevent erosion, the soils in this unit should be planted to close-growing crops every other year. A suitable rotation is 1 year of a small grain overseeded with crotalaria and followed by 1 year of a row crop. Tillage needs to be on the contour, and other water-control practices, such as terracing and use of vegetated waterways, are required (fig. 6). Apply lime according to soil tests and according to the needs of the crop to be grown. A complete fertilizer is required for good yields. Planting windbreaks at right angles to the prevailing winds will help to prevent erosion in large fields. These soils are suitable for irrigation.

The soils are suited to loblolly and slash pines, but the trees need protection from fire and grazing. The soils are well suited to bicolor lespedeza planted to provide food and cover for wildlife. There are many suitable sites for ponds in the natural draws.

CAPABILITY UNIT IIe–2

Only one soil—Marlboro sandy loam, gently sloping phase—is in this unit. This soil is deep and well drained. It is slightly eroded. The surface layer is gray to brown sandy loam. It is underlain by a subsoil of yellowish-brown, sticky sandy clay that is at depths of 5 to 10 inches. The soil has a medium content of organic matter and a high natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate, and the soil is acid.

This productive soil is suited to all the crops generally grown in the county. The main crops are cotton, tobacco, corn, small grains, soybeans, and truck crops, but annual lespedeza, cowpeas, velvetbeans, and vetch are also grown. The best plants to seed for pasture and hay are dallisgrass, bermudagrass, bahiagrass, tall fescue, whiteclover, annual lespedeza, kudzu, and sericea lespedeza. A complete fertilizer is required for high yields. Lime should be applied according to soil tests and according to the needs of the crop to be grown.

Figure 6.—An area of Norfolk sandy loam, gently sloping phase, in capability unit IIe–1. In this area the soil is eroded because it has not been protected from runoff.

Keeping the soil in close-growing crops at least half the time will help to maintain good yields and will protect the soil from erosion. A suitable cropping system consists of growing tall fescue or bahiagrass and whiteclover for 2 years and then row crops for 2 years. Another suitable rotation consists of growing a small grain for 1 year, followed by soybeans or annual lespedeza, and then row crops the second year.

All tillage should be on the contour. Water-control practices, such as terracing and use of vegetated waterways, are needed; the terraces should drain from the ridges to the natural draws. Planting windbreaks at right angles to the prevailing winds will help to prevent erosion in the large fields. The soil is suited to sprinkler irrigation.

This soil is suited to loblolly and slash pines. Trees that are planted will need protection from fire and grazing. The borders and odd corners of fields can be planted to bicolor lespedeza to provide food and cover for wildlife. This soil has some desirable sites for impounded or dug farm ponds.

CAPABILITY UNIT IIe–3

In this capability unit are nearly level, moderately deep soils that are moderately well drained to somewhat poorly drained. The surface layers are 6 to 12 inches thick. They range from dark brown to pale yellow in color and from sandy loam to very fine sandy loam in texture. The subsoils consist of yellowish-red to brown clay or silty clay loam through which water moves slowly.

These soils are medium in their content of organic matter and in their natural supply of plant nutrients. The rate of infiltration is slow, and the water-holding capacity is moderate. The soils are slightly acid to strongly acid. The following soils are in this unit:

Flint fine sandy loam, level phase.
Wahee sandy loam.
Wahee very fine sandy loam.

The soils in capability unit IIe–3 are well suited to oats, common lespedeza, corn, and soybeans and are fairly well suited to cotton, cowpeas, and vetch. Bermudagrass, dallisgrass, bahiagrass, tall fescue, crimson clover, common lespedeza, and white clover are the best plants to seed as forage crops.

Lime and fertilizer are required for high yields of all crops. They should be applied according to the needs indicated by soil tests and according to the requirements of the crop to be grown. Clover, in particular, requires lime. The soils need to have close-growing crops on them

every other year or for 2 out of 4 years. A suitable cropping system consists of growing oats and common lespedeza the first year and row crops the second year. Allowing the lespedeza to reseed for a second crop will strengthen the cropping system.

Because of their thin surface layers and slowly permeable subsoils, these soils are likely to erode. Consequently, tillage should be on the contour, where feasible. The nearly level depressions, or pocketlike areas, in the soils require shallow drainage ditches to remove the excess surface water.

Loblolly pines grow well on these soils, but they need protection from fire and grazing. The borders and odd corners of fields and open areas of woodlands can be planted to bicolor lespedeza to provide food and cover for wildlife. Fences may be needed to protect the plantings from deer.

CAPABILITY UNIT IIe-4

In this capability unit are shallow to moderately deep soils that are moderately well drained to well drained. The soils have surface layers of gray to olive-gray sandy loam. The surface layers are underlain, at depths of 6 to 18 inches, by yellow to brown, slightly cemented sandy loam or sandy clay loam.

These soils are low in organic matter and in their natural supply of plant nutrients. Permeability and the rate of infiltration are moderate to slow. The soils have a low water-holding capacity and are strongly acid. The following soils are in this unit:

Gilead sandy loam, gently sloping phase.
Vaucluse sandy loam, gently sloping phase.

The soils in capability unit IIe-4 are fairly well suited to oats, cotton, corn, crotalaria, rye, and velvetbeans. They are also fairly well suited to bermudagrass, bahiagrass, sericea lespedeza, and crimson clover grown for hay and grazing.

Yields are lower on these soils than on the soils in capability units IIe-1 and IIe-2. Large amounts of organic matter and fertilizer are required to keep yields from deteriorating. Because of the low water-holding capacity and shallow depth to which roots can penetrate, the soils in this unit may need supplemental water during periods of drought. Lime and fertilizer should be applied in the amounts indicated by soil tests and according to the needs of the crop to be grown.

Keeping these soils in close-growing crops at least half of the time will help supply needed organic matter and prevent erosion. A suitable cropping system consists of growing sericea lespedeza and bahiagrass or bahiagrass only for 2 or more years and following with 2 years of row crops; or growing oats and crotalaria for 1 year and following with 1 year of a row crop. Tillage should be on the contour. Water-control practices, such as terracing and use of grassed waterways, are needed. The terraces should drain from the ridges to the natural draws, and the waterways need to be sodded before the terraces are built. If sprinkler irrigation is used to supply water for special crops, care is needed to prevent runoff because of the cemented subsoil.

Pines grow well on these soils. There is some risk of windthrow because of the cemented subsoil, however, particularly on the Vaucluse soil. The borders and odd corners of fields and open areas of woodland can be planted to bicolor lespedeza to provide food and cover for wildlife. The soils have some suitable sites for impounded ponds, but each site should be checked carefully to determine if the substratum will hold water.

CAPABILITY UNIT IIw-1

Only one land type—Local alluvial land—is in capability unit IIw-1. It is deep and level and is somewhat poorly drained to well drained. The areas are in slight depressions and are 2 to 5 acres in size. The surface layer ranges from loam to loamy sand in texture and from gray to brown in color. The subsoil is a sandy loam that is variable in color.

Local alluvial land has a medium content of organic matter and a high natural supply of plant nutrients. It is medium acid. Permeability is moderately rapid. The infiltration rate and the water-holding capacity are moderate.

Most of the acreage in this land type is used for cultivated crops, but the areas are also suitable for pasture or hay crops. If cultivated crops are grown, drainage will be needed. This land type is suited to truck crops, corn, small grains, and soybeans, but it is not so well suited to cotton and tobacco. Coastal bermudagrass, bahiagrass, whiteclover, and annual lespedeza are the best plants to seed for hay or pasture. A suitable cropping system consists of oats and soybeans grown for 1 year, followed by 2 years of row crops. Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown.

Ditches or tile drains can be used to remove excess water. Terraces or diversion channels will be needed in some places to give protection from runoff water from higher lying areas. In other places waterways from the higher lying areas extend through areas of this capability unit.

This land type is well suited to slash and loblolly pines. If it is drained, bicolor lespedeza will grow well and will provide food and cover for wildlife.

CAPABILITY UNIT IIw-2

This unit consists of deep, nearly level soils that are somewhat poorly drained to moderately well drained. The soils are productive but generally need to be drained. They have black to grayish-brown surface layers of sandy loam or fine sandy loam and gray to olive-brown subsoils of sandy loam or sandy clay. The content of organic matter is medium, and the natural supply of plant nutrients ranges from medium to high. Permeability is moderate to slow. The infiltration rate is moderate to high, and the water-supplying capacity is moderate. The soils are medium acid to strongly acid. The following soils are in this capability unit:

Dunbar fine sandy loam.
Dunbar sandy loam.
Goldsboro sandy loam.
Izagora fine sandy loam.
Lynchburg sandy loam.

If drained, the soils in capability unit IIw-2 are among the most productive in the county. They are well suited to corn, truck crops, tobacco, cotton, small grains, soybeans, vetch, and cowpeas. Dallisgrass, bahiagrass, bermudagrass, tall fescue, white clover, annual lespedeza,

and crimson clover are among the best plants to seed for hay and grazing.

If row crops are grown each year on these soils, large amounts of fertilizer and organic material will be needed to maintain yields. Apply the fertilizer and lime according to the needs indicated by soil tests and according to the requirements of the crop to be grown. Suitable cropping systems to help maintain the tilth and productivity of the soils consist of 1 year of a small grain and annual lespedeza, followed by 2 years of row crops; or tall fescue or bahiagrass and whiteclover grown for 2 or more years, followed by row crops for 2 or 3 years.

The Goldsboro soil requires less drainage than the Dunbar and Lynchburg soils. Generally, only small, low areas in the Goldsboro soil need to be drained. The Dunbar, Izagora, and Lynchburg soils must be drained by open ditches or tile drains if they are used for agriculture (fig. 7). The soils in this unit are suited to sprinkler irrigation. There are some desirable sites for dug ponds, but each site should be checked carefully.

The soils in this capability unit are well suited to crops, hay, and pasture, but much of the acreage is in woodland. The soils are well suited to loblolly and slash pines. If the soils are drained, bicolor lespedeza and cowpeas or other annuals can be grown to provide food and cover for wildlife.

CAPABILITY UNIT IIw-4

In this unit are deep, nearly level soils that are well drained. The soils are on flood plains where they are flooded frequently, especially in winter and spring. The surface layers are dark brown and range in texture from fine sandy loam to silt loam. The subsoils are dark reddish brown and range in texture from fine sandy clay to silty clay.

These soils have good structure, and, if cultivated, they are easy to till. In some areas the soils show little profile development. They have a medium supply of organic matter and a high natural supply of plant nutrients. Permeability is moderately rapid. The rate of infiltration and the moisture-supplying capacity are high. The soils are slightly acid to medium acid. The following soils are in this unit:

Congaree fine sandy loam. Congaree silt loam.

The soils in capability unit IIw-4 are best suited to crops that are not damaged by short periods of high water or that are not grown during peak flood periods. They are well suited to corn, small grains, common lespedeza, soybeans, truck crops, and cowpeas. They are also well suited to dallisgrass, bahiagrass, bermudagrass, tall fescue, and white and crimson clovers grown for hay and pasture. Lime and fertilizer are required for high yields,

Figure 7.—A V-ditch used to remove excess water from areas of Dunbar sandy loam in capability unit IIw-2.

especially for row crops. They should be applied according to the needs indicated by soil tests. Where feasible, dikes can be used to protect the areas from floodwaters. The soils are well suited to loblolly and slash pines. Most of the acreage is woodland.

CAPABILITY UNIT IIs–1

In this capability unit are deep, nearly level to gently sloping soils that are moderately well drained to well drained. The soils have surface layers of gray to brown loamy sand that range in thickness from 18 to 30 inches. The subsoils range in color from yellow to red and in texture from sandy loam to sandy clay loam. The Gilead and Vaucluse subsoils are slightly cemented.

The soils in this unit are low to medium in content of organic matter. Their natural supply of plant nutrients is low to high. Permeability and rate of infiltration are slow to moderate. The soils have a low to moderate water-supplying capacity and are medium acid to strongly acid. They are easy to till but are somewhat droughty. The following soils are in this unit:

Gilead loamy sand, gently sloping thick surface phase.
Kalmia loamy sand, level thick surface phase.
Kalmia loamy sand, gently sloping thick surface phase.
Norfolk loamy sand, level thick surface phase.
Norfolk loamy sand, gently sloping thick surface phase.
Ruston loamy sand, level thick surface phase.
Ruston loamy sand, gently sloping thick surface phase.
Vaucluse loamy sand, gently sloping thick surface phase.

The soils in capability unit IIs–1 are suited to tobacco, sweetpotatoes, watermelons, crotalaria, soybeans, and velvetbeans and are fairly well suited to cotton, corn, peanuts, and oats. Coastal bermudagrass, bahiagrass, and sericea lespedeza are among the best plants to seed for hay and grazing.

A suitable cropping system is 1 year of a small grain and soybeans or crotalaria, followed by 1 year of row crops. Allowing the crotalaria to reseed will strengthen this rotation. Another suitable cropping system is 2 or 3 years of bahiagrass, grown alone or with sericea lespedeza, followed by 2 or 3 years of row crops. Bahiagrass and sericea lespedeza can be grown in combination for hay or grazing. Crimson clover can be seeded with bahiagrass or bermudagrass after the grass has become well established and when the supply of plant nutrients has been built up.

Large amounts of organic matter and commercial fertilizer are required to maintain yields, to decrease leaching, and to help control windblowing on these soils. Apply lime and fertilizer according to amounts indicated by soil tests and according to the needs of the crop to be grown. Till on the contour and keep close-growing crops on the soils at least half the time. In large, nearly level fields, plant alternate strips of close-growing and clean-tilled crops at right angles to the prevailing winds. In such areas parallel terraces that eliminate short rows can be used in many places. In the gently sloping areas, the strips should be planted on the contour. In addition, water-control practices, such as terracing, stripcropping, and use of grassed waterways, will be needed. Outlets for the terraces should be constructed before the terraces are built.

These soils are suited to loblolly and slash pines. If adequate amounts of fertilizer are added, bicolor lespedeza can be planted to provide food and cover for wildlife. Only a few sites are suitable for farm ponds.

CAPABILITY UNIT IIs–2

Only one soil—Lakeland sand, level shallow phase—is in this capability unit. This soil is deep and well drained. It has a gray, sandy surface layer, 30 to 36 inches thick. Its subsoil is yellow to yellowish-brown sandy loam. The soil is low in content of organic matter and in its natural supply of plant nutrients. The permeability and rate of infiltration are rapid, but the water-supplying capacity is low. This soil is acid. It is slightly droughty and is subject to leaching.

Lakeland sand, level shallow phase, is suited to watermelons, sweetpotatoes, peaches, crotalaria, and velvetbeans. It is fairly well suited to cotton, tobacco, corn, peanuts, and oats. Coastal bermudagrass, bahiagrass, and sericea lespedeza are the best plants to seed for hay and grazing.

Suitable cropping systems are 1 year of oats and crotalaria, followed by 1 year of corn and crotalaria; or 3 or more years of sericea lespedeza, followed by 2 years of row crops. Bahiagrass and sericea lespedeza can be grown in combination for hay and grazing.

Needed organic matter can be added by growing a cover crop and turning it under every other year. Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. To reduce wind erosion in large fields, plant windbreaks at right angles to the prevailing winds. The soil is suited to sprinkler irrigation. Because of its low water-holding capacity and the low yields of most crops, however, sprinkler irrigation probably would not pay.

Loblolly, longleaf, and slash pines grow well on this soil. If fertilizer is applied each year, bicolor lespedeza can be planted to provide food and cover for wildlife.

CAPABILITY UNIT IIIe–1

In this capability unit are deep, sloping soils that have a slight to severe risk of erosion. The soils have surface layers of gray to brown sandy loam. The subsoils are yellow to red, friable sandy loam or sandy clay loam. The soils have good structure. The content of organic matter is medium, and the natural supply of plant nutrients is high. The permeability, the rate of infiltration, and the water-supplying capacity are all moderate. These soils are medium acid.

The Ruston soil has a few galled spots. In these spots the soil is lower in organic matter and has a lower natural supply of plant nutrients than the soil in surrounding areas. It also has a lower water-holding capacity and is less permeable. The following soils are in capability unit IIIe–1:

Norfolk sandy loam, sloping phase.
Ruston sandy loam, eroded sloping phase.

These soils are fairly well suited to the row crops generally grown in the county. They are also suited to bermudagrass, bahiagrass, sericea lespedeza, kudzu, and crimson clover grown for hay and pasture. If erosion is

controlled, moisture conserved, and adequate amounts of lime and fertilizer applied, good yields are obtained.

Suitable rotations are 3 years of bahiagrass, followed by 1 year of row crops; or 2 years of oats and crotalaria, followed by 1 year of row crops.

Adding large amounts of organic matter and keeping close-growing crops on the soils 2 out of 3 years will help to control erosion. All tillage should be on the contour. Contour stripcropping will make the cropping systems more effective. Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. If the soils are used for row crops, terraces and sodded waterways or other suitable drainageways are needed. Use the natural draws for outlets, and sod them before the terraces are built. These soils can be grazed during most wet periods without damage from trampling.

The soils are suited to loblolly and slash pines. Bicolor lespedeza can be planted along the borders and in odd corners of fields. It can also be planted in open areas in woods to provide food and cover for wildlife. In some places there are desirable sites for impounded farm ponds.

CAPABILITY UNIT IIIe-3

Only one soil—Flint fine sandy loam, sloping phase—is in this capability unit. This is a moderately deep, sloping soil that is moderately well drained. It has a surface layer of fine sandy loam and a subsoil of heavy clay through which water moves slowly. The content of organic matter is medium, and the water-holding capacity is moderate.

This soil is fairly well suited to corn, soybeans, cotton, oats, annual lespedeza, and crotalaria. Dallisgrass, bahiagrass, bermudagrass, sericea lespedeza, white and crimson clovers, and annual lespedeza make good yields and are among the best plants to seed for hay and pasture.

If this soil is used for row crops, it should be kept in close-growing crops at least 2 out of 3 years to help control erosion. A suitable cropping system is 2 years of a small grain and annual lespedeza, followed by 1 year of row crops. Another suitable rotation consists of bahiagrass or sericea lespedeza, grown for 3 or more years, and then 2 years of row crops. Planting the crops on the contour in the interval strips of the terraces will make the cropping systems more effective.

Lime and fertilizer should be applied according to the needs indicated by soil tests. This soil needs terracing, use of vegetated waterways, and other water-control practices. Construct outlets for the terraces in natural draws before the terraces are built.

Loblolly pine grows fairly well on this soil. Bicolor lespedeza grows well and will provide food and cover for wildlife.

CAPABILITY UNIT IIIe-4

In this capability unit are sloping, shallow to moderately deep soils that are moderately well drained to well drained. The surface layers have a texture of sandy loam or loamy sand. The subsoils have a texture of loamy sand or sandy clay loam. The surface layers have fairly good structure, but the subsoils are slightly cemented so that the movement of water is retarded. These soils are low in organic matter, in their natural supply of plant nutrients, and in water-supplying capacity. They are medium acid to strongly acid. The following soils are in this unit:

Gilead loamy sand, sloping thick surface phase.
Gilead sandy loam, sloping phase.
Vaucluse loamy sand, sloping thick surface phase.
Vaucluse sandy loam, sloping phase.

These soils are fairly well suited to oats, cotton, corn, cowpeas, crotalaria, and watermelons. Coastal bermudagrass, bahiagrass, and sericea lespedeza are among the best plants to seed for hay and pasture.

Close-growing crops should be kept on these soils two-thirds of the time to add organic matter and to help control erosion. A suitable cropping system is 4 or more years of sericea lespedeza or bahiagrass, followed by 2 years of row crops. Another suitable rotation is 2 years of oats and crotalaria or cowpeas, and then 1 year of row crops.

The soils need large amounts of organic matter and a complete fertilizer if good yields are to be maintained. Lime is needed to correct acidity, particularly for hay and pasture crops. Planting the crops on the contour in the interval strips between the terraces will make the cropping systems more effective. All tillage should be on the contour. Water-control practices, such as terracing and use of vegetated waterways, are needed. Establish the outlets for the terraces in the natural draws before the terraces are built.

These soils are fairly well suited to loblolly pines. Bicolor lespedeza grows fairly well and will provide food and cover for wildlife. The soils have some desirable sites for impounded farm ponds. Each site must be checked carefully, however, to determine if the underlying material will hold water.

CAPABILITY UNIT IIIe-5

This capability unit is made up of sloping, deep, well-drained soils. The soils are similar to those of capability unit IIIe-4, but they have thicker surface layers. The surface layers have a texture of loamy sand and are 18 to 30 inches thick. The soils are medium in their natural supply of plant nutrients and have moderate water-supplying capacity. They are slightly droughty. The following soils are in this unit:

Norfolk loamy sand, sloping thick surface phase.
Ruston loamy sand, sloping thick surface phase.

These soils are fairly well suited to sweetpotatoes, watermelons, crotalaria, cotton, corn, peanuts, oats, velvetbeans, and soybeans. They are well suited to Coastal bermudagrass, bahiagrass, and sericea lespedeza grown for hay and grazing.

These soils need to be kept in close-growing crops at least 2 out of 3 years to maintain the content of organic matter and yields, and to control erosion. A suitable cropping system is 3 or more years of bahiagrass or sericea lespedeza, grown alone or in combination, then 1 or 2 years of row crops. Another suitable rotation is 2 years of small grains and crotalaria, followed by 1 year of row crops. Crimson clover can be grown with bahiagrass or bermudagrass for hay or grazing after the grasses are established and when the supply of plant nutrients has been built up. If a legume is not grown, large amounts of nitrogen are required for high yields.

Frequent application of fertilizer is needed to maintain good yields of all crops. Apply the fertilizer and lime in amounts indicated by soil tests and according to the needs of the crop to be grown. Till on the contour.

The soils need terracing, the use of vegetated waterways, and other water-control practices. The waterways should be established in natural draws before the terraces are built. In some places parallel terraces can be used. In other places stripcropping and vegetated waterways will provide adequate control of water without the use of terraces.

These soils are suited to loblolly, slash, and longleaf pines, but the trees should be protected from damage by fire and grazing. They are fairly well suited to bicolor lespedeza, which will provide food and cover for wildlife. The lespedeza generally needs to be fertilized each year. There are some suitable sites for impounded farm ponds.

CAPABILITY UNIT IIIw-1

Only one soil—Klej loamy sand—is in this capability unit. This soil is nearly level and is deep and somewhat poorly drained. The surface layer, a dark-colored loamy sand, is underlain by mottled, brown loamy sand or sand. The soil is medium in content of organic matter and has a low natural supply of plant nutrients. The permeability and the rate of infiltration are moderate. The water-holding capacity is low, and the soil is acid.

If drained, this soil is fairly well suited to truck crops, corn, soybeans, oats, cowpeas, and crotalaria. It is also fairly well suited to bermudagrass, dallisgrass, bahiagrass, whiteclover, and annual lespedeza.

To help maintain yields, adequate fertilizer will be needed and large amounts of crop residues should be turned under, if row crops are grown each year. A suitable cropping system is 3 or more years of bahiagrass, followed by 2 or 3 years of row crops. Truck crops can be grown each year if followed by crotalaria or cowpeas. Another suitable rotation is 1 year of oats and crotalaria or annual lespedeza, 1 year of corn and crotalaria, and then 1 year of row crops.

Lime is required for most crops, and particularly for clover. It should be applied according to the needs indicated by soil tests. Large amounts of fertilizer are required for high yields. Open ditches, or tile drains, or both, can be used to remove excess surface water. The open ditches are hard to maintain, however, because of the sandy subsoil, which causes the sides of the ditches to cave. In periods of drought, sprinkler irrigation can be used, particularly on truck crops.

This soil is fairly well suited to loblolly and slash pines. Annual plants should be seeded to provide food and cover for wildlife. Dug ponds generally provide ample water for irrigation, but the side slopes must be broad to prevent them from caving.

CAPABILITY UNIT IIIw-2

In this capability unit are nearly level, deep soils that are poorly drained. The surface layers are black to gray sandy loam. The subsoils are gray to grayish-brown, mottled sandy loam or sandy clay. These soils are medium acid to strongly acid. They are medium in content of organic matter and in their natural supply of plant nutrients. Permeability is slow, and the rate of infiltration and water-holding capacity are moderate. The following soils are in this unit:

Coxville fine sandy loam.	Grady sandy loam.
Coxville sandy loam.	Leaf fine sandy loam.

These soils must be drained before they can be used for cultivated crops or for hay or pasture. In most places in the Coxville and Grady sandy loams, tile drains can be used to remove excess surface water. On these soils tile drains are particularly desirable to use in cultivated fields; otherwise, a combination of open and tile drains can be used. In the Coxville and Leaf fine sandy loams, open ditches are needed because tile drains are not sufficient to provide adequate drainage. In many places the Leaf soil is used for pasture or woodland because adequate drainage cannot be provided for cultivated crops.

These soils tend to become hard if the content of organic matter is not maintained. In many places they puddle and pack if grazed when wet.

If adequately drained and fertilized, these soils are suited to truck crops, corn, soybeans, and oats. They are also suited to dallisgrass, bermudagrass, tall fescue, and annual lespedeza grown for hay and pasture. If adequate fertilizer is used and large amounts of organic matter are turned under, row crops can be grown each year.

Suitable cropping systems consist of 2 or more years of tall fescue and whiteclover, followed by 2 or 3 years of row crops; or 1 or 2 years of oats and annual lespedeza, followed by 1 or 2 years of row crops. Truck crops can be grown each year if they are followed by soil-improving crops.

Large amounts of fertilizer are needed for high yields. Lime is required for most crops, particularly for legumes. Apply lime in amounts indicated by soil tests.

These soils are suited to loblolly and pond pines and to blackgum and sweetgum. Browntop millet or other annuals are the best plants to seed to provide food and cover for wildlife. The soils have some desirable sites for dug ponds.

CAPABILITY UNIT IIIw-3

Only one soil—Chewacla silt loam—is in this capability unit. This level or nearly level soil is somewhat poorly drained. It occurs on the first terraces of the larger streams where it is sometimes flooded. The surface layer of silt loam is underlain by a subsoil of silty clay through which water moves slowly. The strong mottling in the subsoil indicates that the soil has a seasonal high water table.

This soil is medium in content of organic matter and in its natural supply of plant nutrients. Its permeability and rate of infiltration are moderate. The water-supplying capacity is high, and the soil is medium acid.

This soil must be drained before it can be used for crops. Drainage can be provided by open ditches, but in some places the soil is difficult to drain because suitable outlets are lacking. Diversion ditches are required to protect the areas from runoff from higher lying areas. Dikes are needed to protect some areas from overflow. This soil tends to puddle in wet periods and becomes hard when dry.

If adequately drained, this soil is suited to corn, small grains, and soybeans. It is also suited to tall fescue, bermudagrass, dallisgrass, whiteclover, and annual lespedeza grown for hay and pasture. If large amounts of lime,

fertilizer, and organic matter are added to help maintain yields, row crops can be grown each year.

A suitable cropping system is 2 or more years of tall fescue, followed by 2 years of row crops. Another suitable rotation is 2 years of annual lespedeza, overplanted with grain for grazing, and then 2 years of corn interplanted with soybeans.

Lime and fertilizer are required for high yields. They should be applied according to the needs indicated by soil tests and according to the needs of the crop to be grown. In wet periods care must be used in grazing this soil.

This soil is well suited to loblolly pines, and most of it is in pines. Cowpeas, browntop millet, or other annuals are the best plants to seed to provide food and cover for wildlife.

CAPABILITY UNIT IIIw-4

In this capability unit are deep, nearly level soils that are very poorly drained. The soils have black, organic surface layers. The subsoils are gray and range in texture from sand to sandy clay loam. Of these soils, the Okenee and Portsmouth have a medium supply of natural plant nutrients and are moderate in permeability. The Rutlege soils have a low natural supply of plant nutrients and rapid permeability. All of the soils in this unit are high in organic matter and have a moderate water-supplying capacity. They are strongly acid. The following soils are in this unit:

Okenee loam.
Portsmouth mucky loam.
Portsmouth sandy loam.
Rutlege loamy sand.
Rutlege mucky loam.

These soils must be drained before they can be used for crops or pasture. Excess water can be removed by open ditches, tile drains, or both. All the soils are suited to tile drainage. Open ditches are hard to maintain in the Okenee and Rutlege soils, however, because the sandy subsoil may cause the sides to cave.

The soils of this capability unit can be grazed sooner after rains, without damage to their structure, than the soils in capability unit IIIw-2. Much of the organic matter is soon lost when the soils are cultivated. The soils are suited to sprinkler irrigation.

If adequately drained, these soils can be cultivated and are suited to corn, oats, soybeans, and truck crops. In addition, they are well suited to dallisgrass, tall fescue, whiteclover, and annual lespedeza grown for hay and pasture.

Choose a cropping system that will help to maintain yields. A suitable cropping system is 3 or more years of grass and clover, followed by 3 years of row crops. Another suitable rotation is 1 year of grain and annual lespedeza, followed by 1 year of row crops.

The soils need lime and large amounts of fertilizer. The lime should be applied according to the needs indicated by soil tests. To maintain the content of organic matter, grow cover crops and turn under all crop residues. Truck crops, in particular, will benefit by sprinkler irrigation.

These soils are suited to gum trees, to loblolly, slash, and pond pines, and to cypress. If drainage is provided, annual plants can be seeded to provide food and cover for wildlife. The soils have some favorable sites for dug ponds, but in places the sandy subsoil will cause the sides of the ponds to cave.

CAPABILITY UNIT IIIs-1

In this capability unit are deep soils that are excessively drained. The soils are subject to leaching, and in some places they are likely to be eroded by wind. The surface layers are 30 to 36 inches thick. They range from gray to brown in color and from sand to loamy sand in texture. The subsoils range from yellow to red in color and from loamy sand to sandy loam in texture.

All of these soils are low in organic matter and in their natural supply of plant nutrients. They have a low moisture-supplying capacity, rapid permeability, and a high rate of infiltration. The Independence soil has better texture and structure than the other soils in this unit. Consequently, it has a slightly better capacity to supply moisture. All of the soils are droughty and acid. The following soils are in this unit:

Eustis loamy sand, gently sloping phase.
Huckabee loamy sand, gently sloping phase.
Independence loamy sand, gently sloping phase.
Lakeland sand, gently sloping shallow phase.

These soils are fairly well suited to tobacco, cotton, watermelons, sweetpotatoes, velvetbeans, corn, oats, peanuts, rye, and crotalaria. Coastal bermudagrass, sericea lespedeza, and bahiagrass are the best plants to seed as forage crops. A suitable cropping system is 2 years of oats and crotalaria, followed by 1 year of corn and crotalaria; or 3 or more years of bahiagrass, Coastal bermudagrass, or sericea lespedeza, and then 2 years of row crops.

To help supply organic matter, plant a cover crop 2 years out of 3. Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. Till on the contour. In addition, plant sericea lespedeza or other perennials in strips on the contour. The strips will serve as a guide for contour tillage and also will help to reduce erosion. Generally, these soils are not suitable for terracing. They can be grazed sooner after rains, without damage from trampling, than other soils in the county.

These soils are suited to loblolly, slash, and longleaf pines, but the trees need protection from fire and grazing. If a complete fertilizer is applied annually, bicolor lespedeza can be grown to provide food and cover for wildlife.

CAPABILITY UNIT IIIs-2

In this capability unit are deep, sandy soils that are excessively drained. The surface layers consist of gray to brown sand. The subsoils are yellow to red sand or loamy sand. These soils are low in content of organic matter and in their natural supply of plant nutrients. Permeability is rapid, and the rate of infiltration is high. The soils are droughty and acid. The following soils are in this unit:

Eustis sand, gently sloping phase.
Huckabee sand, gently sloping phase.
Lakeland sand, gently sloping phase.

Organic matter and fertilizer that have been added leach out of these soils quickly. In large fields there is risk of wind erosion.

Crotalaria, corn, cowpeas, velvetbeans, watermelons, and rye grow fairly well on all of these soils, and peaches grow fairly well on the Eustis and Lakeland soils. Sericea lespedeza, Coastal bermudagrass, and bahiagrass, grown alone or in combination, are satisfactory plants to

seed for grazing. A suitable cropping system consists of 2 years of crotalaria, followed by 1 year of corn and volunteer crotalaria. Another suitable rotation is 3 or more years of bahiagrass, grown alone or with sericea lespedeza, and then 2 years of row crops.

Growing cover crops 2 out of 3 years and turning under crop residues will help to maintain organic matter. If large amounts of organic matter are added and fertilizer is applied frequently, crops make fair yields. Apply lime according to the needs indicated by soil tests and the requirements of the crop to be grown. Till on the contour. In large fields plant alternate strips of close-growing and clean-tilled crops to help reduce damage by wind and water. Planting permanent windbreaks at right angles to the prevailing winds will also help to reduce damage by erosion. If the soils are pastured, they will need protection from overgrazing. They are not suited to terracing.

Loblolly and slash pines grow fairly well on these soils if scrub oak is controlled. Plant bicolor lespedeza only if large amounts of fertilizer are applied annually. In many places bicolor lespedeza and sericea lespedeza can be planted in the borders next to woodland.

CAPABILITY UNIT IVe-4

Only one soil—Vaucluse sandy loam, eroded sloping phase—is in this capability unit. This soil is shallow to moderately deep and is well drained. It is low in content of organic matter and in its natural supply of plant nutrients. Permeability is slow. The rate of infiltration and the water-holding capacity are low. The soil is droughty and acid and has a serious risk of erosion. In many places there are shallow gullies and galled spots.

This soil is not suited to continuous cropping. Yields of row crops and forage crops are only fair. Corn, oats, and soybeans grow fairly well. Bahiagrass, sericea lespedeza, and Coastal bermudagrass, grown with annual lespedeza or reseeding crimson clover, are the best plants to seed as forage crops. If sericea lespedeza and bahiagrass or Coastal bermudagrass are grown for several years, a cropping system can be used in which row crops are grown 1 out of 4 years. Grow the row crops in contour strips along with sericea lespedeza, bahiagrass, or Coastal bermudagrass.

Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. Till on the contour, and plant perennials in the natural waterways. Protect the soil from grazing when it is wet. This soil is not suited to terracing.

This soil is only fairly well suited to loblolly pine. Bicolor lespedeza can be planted in the borders and in odd corners of fields to provide food and cover for wildlife.

CAPABILITY UNIT IVe-5

Only one soil—Norfolk loamy sand, strongly sloping thick surface phase—is in this capability unit. This deep, well-drained soil has slopes ranging from 10 to 15 percent and is slightly droughty. The surface layer consists of loamy sand that is 18 to 30 inches thick. The subsoil is sandy loam through which water moves freely.

This soil is medium in content of organic matter and high in its natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. The soil is medium acid. Plant nutrients leach out quickly, and there is a serious risk of erosion.

This soil is not suited to continuous cropping. Yields of row and forage crops are only fair. Cotton, corn, and oats grow fairly well. Sericea lespedeza, kudzu, Coastal bermudagrass, and bahiagrass are the best plants to seed as forage crops.

If this soil is needed for row crops, grow the crops in contour strips along with bahiagrass, sericea lespedeza, Coastal bermudagrass, or kudzu. A row crop can be grown 1 year out of 4 after the close-growing crops have been grown for several years. Winter legumes can be grown if the soil has been used for grass for 3 or 4 years and the supply of plant nutrients has been replenished. The soil can be grazed when wet without damage from trampling.

Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. Till on the contour. Generally, the strong slopes and sandy texture of this soil make terracing impractical.

This soil is best suited to loblolly and slash pines, but the trees need protection from fire and grazing. If the soil is fertilized each year, bicolor lespedeza can be grown to provide food and cover for wildlife.

CAPABILITY UNIT IVs-1

In this unit are sloping, deep soils that are excessively drained. The soils are sandy, droughty, and subject to severe leaching. They are acid. The content of organic matter and the natural supply of plant nutrients are low. The rate of infiltration is high, but the soils have a low moisture-supplying capacity. The following soils are in this unit:

Eustis sand, sloping phase.
Huckabee sand, sloping phase.
Lakeland sand, sloping phase.
Lakeland sand, sloping shallow phase.

These soils leach badly, require frequent applications of fertilizer, and are low in productivity. They are, therefore, generally not suited to cultivated crops or pasture. Corn, velvetbeans, and watermelons are the row crops that grow best. The best plants to seed for pasture are sericea lespedeza and bahiagrass, grown alone or in combination, or Coastal bermudagrass.

If these soils must be used for crops or pasture, choose a cropping system that will add needed organic matter. A suitable cropping system consists of 3 or 4 years of crotalaria, followed by 1 year of corn and velvetbeans; or 4 or 5 years of bahiagrass and sericea lespedeza and then 1 or 2 years of corn and velvetbeans.

Planting the crops in contour strips will make the cropping systems more effective. Till on the contour. Keep the soils in close-growing crops 3 out of 4 years, and turn all crop residues under. Apply lime and fertilizer according to the needs indicated by soil tests and according to the requirements of the crop to be grown. The soils are not suited to terracing.

If scrub oaks are controlled, pines will grow on these soils. Bicolor lespedeza can be planted to provide food and cover for wildlife, but large amounts of fertilizer are

required each year. The soils have some desirable sites for impounded ponds.

CAPABILITY UNIT Vw-2

In this capability unit are level or nearly level, deep soils that are poorly drained to very poorly drained. Water stays close to the surface of these soils most of the time. The surface layers consist of black or gray loamy sand or sandy loam. The subsoils are gray and range in texture from loamy sand to sandy clay loam.

Generally, the content of organic matter in these soils is low. The surface layer of the Plummer soil, however, has a high content of organic matter. The soils all have a low natural supply of plant nutrients and low water-holding capacity. The Plummer soil is rapidly permeable and has a high rate of infiltration; the other soils are moderately permeable and have a moderate rate of infiltration. The soils are acid. The following soils are in this unit:

Myatt sandy loam.
Plummer loamy sand.
Rains sandy loam.

These soils are not suited to crops. They are hard to manage if they are pastured. In most places there are no adequate outlets available for drainage. Because of the sandy subsoils, open ditches are difficult to maintain.

Most of these soils are in trees. The open areas generally have a cover of carpetgrass. Adding fertilizer will improve the stands of carpetgrass for grazing. Even though large amounts of fertilizer are added, however, yields are lower than on soils that have a higher natural supply of plant nutrients.

The soils are suited to loblolly, slash, and pond pines. They are not suited to intensive management for wildlife. There are some suitable sites for ponds.

CAPABILITY UNIT VIe-2

In this capability unit are strongly sloping soils that are severely eroded or that are subject to erosion. The soils are well drained to moderately well drained and have tough, heavy subsoils through which water moves slowly. The Caroline soil is medium in content of organic matter and in natural supply of plant nutrients. The Vaucluse soil, on the other hand, is low in content of organic matter and in natural supply of plant nutrients. The permeability and rate of infiltration are moderate to slow, and the water-holding capacity is moderate to low. These soils are acid. The following soils are in this unit:

Caroline fine sandy loam, eroded strongly sloping phase.
Vaucluse sandy loam, strongly sloping phase.

These soils are not suited to cultivated crops, nor are they suited to hay or pasture crops. If they must be used for forage crops, sericea lespedeza and bahiagrass are the best plants to seed. The soils need fertilizer and lime. These should be applied according to the needs indicated by soil tests and according to the requirements of the crop to be grown.

The Caroline soil is better suited to loblolly pine than the Vaucluse soil, which also has a risk of windthrow. Bicolor lespedeza can be planted to provide food and cover for wildlife. The soils have some desirable sites for impounded ponds.

CAPABILITY UNIT VIIe-2

This capability unit is made up of miscellaneous land types and strongly sloping to moderately steep soils that have a slightly cemented subsoil through which water moves slowly. The soils are severely eroded or are subject to erosion and are acid. The natural supply of plant nutrients and the moisture-holding capacity are low. The following soils are in this unit:

Gently sloping land, sandy and clayey sediments.
Gullied land.
Pits and dumps.
Sloping land, sandy and clayey sediments.
Sloping land, sandy and clayey sediments, eroded phase.
Vaucluse sandy loam, eroded strongly sloping phase.
Vaucluse sandy loam, moderately steep phase.

These soils are best suited to trees and should be kept in trees. They are only fairly well suited to loblolly pines and have a risk of windthrow. It is best to manage the areas primarily for production of pulpwood.

The soils are fairly well suited to bicolor lespedeza. Planting the lespedeza in contour strips in open areas will help to conserve the soil and will provide food and cover for wildlife. For high yields of lespedeza, the areas need to be fertilized annually. The soils have some suitable sites for ponds.

CAPABILITY UNIT VIIw-1

In this capability unit are nearly level, very poorly drained, swampy soils that are covered by water most of the time. The soils have variable texture, color, and depth. Their profiles show little development. The soils are on the first bottoms of the larger streams of the county and are very hard to drain. The following soils are in this unit:

Marsh.
Mixed alluvial land.
Swamp.
Wehadkee silt loam.

It is best to manage these soils for the production of hardwoods, generally by caring for the trees that are already established. The soils are suited to yellow-poplar and gum trees. The trees should be cut selectively.

CAPABILITY UNIT VIIs-1

This capability unit is made up of gently sloping and strongly sloping, sandy soils. The soils have a low content of organic matter and are very low in natural supply of plant nutrients. Permeability is very rapid, and the rate of infiltration is high. The soils have a low water-holding capacity. They are acid and support only limited vegetation. The following soils are in this unit:

Lakeland sand, strongly sloping phase.
Lakewood sand, gently sloping phase.

These soils should be kept in trees, the use to which they are best suited. If feasible, control the scrub oaks so that pine trees can reseed. It is generally not practical to manage the soils for wildlife.

Estimated Yields and Suitability

The first part of this subsection gives the estimated average acre yields of principal crops on the different soils. The second part deals with the relative suitability of each soil in the county for eight crops that are commonly grown or that are known to be suited to the soils and to the climate.

Estimated yields

In table 1 are estimated long-term, average acre yields for the principal crops grown in the county. Yields are given for each soil under two levels of management. In columns A are listed yields to be expected under the management now prevailing in the county. The yields in columns B are those to be expected under improved management.

Generally, yields in columns B are higher than those in columns A. The yields for high-value crops, however, may show little difference because they are now grown under the highest level of management believed to be feasible.

The figures in columns A are based largely on observations made by members of the soil survey party; on information obtained by interviews with farmers and other agricultural workers who have had experience with the soils and crops of the area; and on comparisons with yield tables for other counties in South Carolina that have similar soils. For most soils, however, records on specific crop yields were not available.

The requirements of good management vary according to the soils, but the following practices are considered requisite to obtaining yields in columns B: (1) The proper choice and rotation of crops; (2) the correct use of commercial fertilizers, lime, and manure; (3) use of proper tillage methods; (4) return of organic matter to the soils; (5) adequate control of water; (6) maintaining or improving the productivity and workability of the soils; and (7) conservation of soil material, plant nutrients, and soil moisture.

TABLE 1.—*Estimated average acre yields of the principal crops under two levels of management*

[Yields in columns A are those obtained under common management practices; those in columns B are yields to be expected under improved management practices. Absence of figure indicates crop is not commonly grown]

Soil	Corn		Cotton (lint)		Tobacco		Soybeans		Oats		Pasture	
	A	B	A	B	A	B	A	B	A	B	A	B
	Bu.	*Bu.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]
Cahaba fine sandy loam:												
Level phase	35	75	375	500	1,100	1,700	15	30	40	70	180	365
Gently sloping phase	30	70	350	500	1,100	1,700	15	30	40	70	180	365
Caroline fine sandy loam, eroded strongly sloping phase	------	------	------	------	------	------	------	------	------	------	90	250
Chewacla silt loam	35	85	------	------	------	------	15	25	45	80	300	420
Congaree fine sandy loam	50	100	------	------	------	------	20	40	60	100	300	420
Congaree silt loam	50	100	------	------	------	------	20	40	60	100	300	420
Coxville sandy loam	25	60	150	400	------	------	15	30	35	75	200	365
Coxville fine sandy loam	25	60	150	400	------	------	15	30	35	75	200	365
Dunbar sandy loam	45	90	450	750	1,500	2,500	20	40	50	90	280	420
Dunbar fine sandy loam	45	90	450	750	1,500	2,500	20	40	50	90	280	420
Eustis sand:												
Gently sloping phase	20	40	175	400	800	1,300	------	------	25	50	120	325
Sloping phase	15	35	150	400	600	1,200	------	------	25	45	90	260
Eustis loamy sand, gently sloping phase	20	45	200	450	900	1,400	------	------	30	55	120	350
Flint fine sandy loam:												
Level phase	25	60	150	400	600	1,200	15	25	35	65	180	350
Sloping phase	20	50	150	400	600	1,200	15	25	30	50	120	320
Gently sloping and sloping land, sandy and clayey sediments:												
Gently sloping land, sandy and clayey sediments	------	------	------	------	------	------	------	------	------	------	------	------
Sloping land, sandy and clayey sediments	------	------	------	------	------	------	------	------	------	------	------	------
Sloping land, sandy and clayey sediments, eroded phase	------	------	------	------	------	------	------	------	------	------	------	------
Gilead sandy loam:												
Gently sloping phase	30	55	250	500	1,000	1,600	14	25	40	65	160	365
Sloping phase	25	50	225	450	800	1,400	12	25	35	60	120	320
Gilead loamy sand:												
Gently sloping thick surface phase	25	50	200	400	900	1,400	12	20	35	60	140	350
Sloping thick surface phase	20	45	175	350	800	1,300	12	20	35	55	140	350
Goldsboro sandy loam	40	80	400	1,000	1,700	2,500	18	30	45	75	270	420
Grady sandy loam	25	60	150	400	------	------	15	30	35	75	200	365
Gullied land	------	------	------	------	------	------	------	------	------	------	------	------
Huckabee sand:												
Gently sloping phase	20	40	175	400	800	1,300	10	20	25	45	120	325
Sloping phase	15	35	150	400	600	1,200	10	20	25	40	90	260
Huckabee loamy sand, gently sloping phase	20	45	200	400	900	1,400	12	20	25	45	120	350
Independence loamy sand, gently sloping phase	25	50	275	500	1,100	1,700	12	25	30	50	120	350
Izagora fine sandy loam	35	80	200	600	700	1,500	18	30	40	75	180	365
Kalmia sandy loam:												
Level phase	35	75	400	700	1,500	2,100	18	30	45	80	220	420
Gently sloping phase	30	70	375	700	1,400	2,000	18	30	45	80	220	420

See footnote at end of table.

TABLE 1.—*Estimated average acre yields of the principal crops under two levels of management*—Continued

Soil	Corn		Cotton (lint)		Tobacco		Soybeans		Oats		Pasture	
	A	B	A	B	A	B	A	B	A	B	A	B
	Bu.	*Bu.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]
Kalmia loamy sand:												
Level thick surface phase	30	60	300	500	1, 200	2, 000	15	25	40	70	140	350
Gently sloping thick surface phase	25	50	300	500	1, 200	2, 000	15	25	40	70	140	350
Klej loamy sand	20	65			900	1, 600	15	30	35	60	150	350
Lakeland sand:												
Gently sloping phase	20	40	225	400	800	1, 300	12	20	25	45	120	325
Sloping phase	15	35	150	400	600	1, 200	10	20	25	40	90	260
Strongly sloping phase												
Level shallow phase	25	50	250	450	1, 100	1, 700	14	25	30	55	140	350
Sloping shallow phase	15	35	200	425	800	1, 400	12	20	25	45	120	300
Gently sloping shallow phase	20	40	200	425	900	1, 500	12	20	30	50	120	325
Lakewood sand, gently sloping phase												
Leaf fine sandy loam	20	40					15	25	25	45	140	365
Local alluvial land	40	80	300	750	1, 200	1, 800	18	30	50	80	180	365
Lynchburg sandy loam	45	90	350	900	1, 500	2, 500	20	35	50	80	280	420
Marlboro sandy loam:												
Level phase	45	90	500	1, 000	1, 700	2, 500	20	40	50	90	270	420
Gently sloping phase	40	85	500	1, 000	1, 700	2, 500	20	35	50	90	270	420
Marsh												
Mixed alluvial land												
Myatt sandy loam												
Norfolk sandy loam:												
Level phase	45	85	450	900	1, 700	2, 500	20	35	50	85	270	420
Gently sloping phase	45	85	450	900	1, 700	2, 500	20	35	50	85	270	420
Sloping phase	40	75	350	750	1, 100	1, 700	15	30	40	70	160	320
Level thin solum phase	45	85	450	900	1, 500	2, 200	20	35	50	85	270	420
Gently sloping thin solum phase	45	85	450	900	1, 500	2, 200	20	35	50	85	270	420
Norfolk fine sandy loam:												
Level phase	45	85	450	900	1, 700	2, 500	20	35	50	85	270	420
Gently sloping phase	45	85	450	900	1, 700	2, 500	20	35	50	85	270	420
Norfolk loamy sand:												
Level thick surface phase	35	65	375	750	1, 200	2, 000	18	30	40	70	140	350
Gently sloping thick surface phase	30	60	350	650	1, 200	2, 000	15	30	40	70	140	350
Sloping thick surface phase	25	50	225	425	900	1, 400	15	25	35	60	120	320
Strongly sloping thick surface phase	20	45	200	400	600	1, 200	12	20	25	40	90	260
Okenee loam	20	45					15	25	30	45	180	365
Pits and dumps												
Plummer loamy sand											90	250
Portsmouth mucky loam	25	60					15	30	40	70	220	420
Portsmouth sandy loam	25	60					15	30	40	70	220	420
Rains sandy loam											90	250
Ruston sandy loam:												
Level phase	40	80	450	900	1, 500	2, 200	20	30	45	80	270	420
Gently sloping phase	40	80	450	900	1, 500	2, 200	20	35	45	80	270	420
Eroded sloping phase	25	40	250	375	700	1, 300	15	20	35	60	120	350
Ruston fine sandy loam:												
Level phase	45	85	450	900	1, 500	2, 200	20	35	50	85	270	420
Gently sloping phase	45	85	450	900	1, 500	2, 200	20	35	50	85	270	420
Ruston loamy sand:												
Level thick surface phase	35	65	375	750	1, 200	2, 000	18	30	45	75	140	350
Gently sloping thick surface phase	30	60	350	650	1, 200	2, 000	15	30	45	75	140	350
Sloping thick surface phase	25	50	225	425	900	1, 400	15	25	40	70	120	320
Rutlege loamy sand	20	45					12	25	30	50	160	350
Rutlege mucky loam	20	45					12	25	30	50	160	350
Swamp												
Vaucluse sandy loam:												
Gently sloping phase	20	40	175	375	700	1, 400	12	20	35	60	90	300
Sloping phase	20	40	150	350	600	1, 200	12	20	30	55	90	290
Strongly sloping phase												
Moderately steep phase												
Eroded sloping phase											90	250
Eroded strongly sloping phase												
Vaucluse loamy sand:												
Gently sloping thick surface phase	15	35	150	350	600	1, 200	10	20	30	55	90	280
Sloping thick surface phase	15	35	150	300			10	20	30	50	90	280
Wahee very fine sandy loam	25	60	150	350	600	1, 200	15	25	35	65	180	350
Wahee sandy loam	25	60	150	400	600	1, 200	15	25	35	65	180	350
Wehadkee silt loam												

[1] Cow-acre-days is a term used to express the number of days 1 acre will support 1 animal unit (1 cow, steer, or horse; 5 hogs; or 7 sheep or goats) without injury to the pasture.

The yields in columns B are based largely upon estimates made by men who have had experience with the soils and crops of the county. The known deficiencies of the soils were considered in judging how much yields might increase if these deficiencies were corrected within practical limits. These limits cannot be precisely defined, nor can response to good management be precisely predicted. By comparing yields in columns B with those in columns A, however, one may gain some idea of the response a soil will make to good management. On practically all soils of the county, more intensive management will bring increased yields.

Relative suitability of the soils for crops

Table 2 gives the relative suitability of each soil in the county for eight crops that are commonly grown or for which the soils and climate are known to be suited. The degree of suitability of the soil for the particular crop is expressed by index numbers. Number 1 indicates that the soil is well suited; numbers 2 and 3, that it is progressively less well suited, and number 4, that it is not at all suited.

Soils that have index number 1 are the most desirable for the given crop. For these soils, yields are more dependable and hazards are less than for other soils in the county and the least intensive management is required. Soils having index number 2 are suited to the crop, but they are materially limited by excess moisture, lack of moisture, shallow root zone, low fertility, or some other factor. Index number 3 indicates that a given crop cannot be expected to produce good yields on the soil without intensive management practices that generally do not pay. Number 4 indicates that the soil is not suited to the particular crop.

Plan the use of all of the soils, regardless of their crop suitability rating, according to their capabilities.

TABLE 2.—*Relative suitability of the soils for specified crops*

[Number 1 means soil is well suited; 2 means fairly well suited; 3 means less well suited; and 4 means not suited]

Soil	Corn	Cotton	Tobacco	Soybeans	Tomatoes	Watermelons	Oats	Pasture
Cahaba fine sandy loam:								
Level phase	2	2	2	2	2	2	2	2
Gently sloping phase	2	2	2	2	2	2	2	2
Caroline fine sandy loam, eroded strongly sloping phase	4	4	4	4	4	4	4	3
Chewacla silt loam	2	4	4	2	3	4	2	1
Congaree fine sandy loam	1	4	4	1	2	3	1	1
Congaree silt loam	1	4	4	1	2	3	1	1
Coxville sandy loam	2	3	4	2	4	4	2	2
Coxville fine sandy loam	2	3	4	2	4	4	2	2
Dunbar sandy loam	1	1	1	1	2	3	1	1
Dunbar fine sandy loam	1	1	1	1	2	3	1	1
Eustis sand:								
Gently sloping phase	3	3	3	4	3	2	3	2
Sloping phase	3	3	3	4	3	2	3	3
Eustis loamy sand, gently sloping phase	3	3	3	4	3	2	3	2
Flint fine sandy loam:								
Level phase	2	3	3	2	3	3	2	2
Sloping phase	3	3	3	2	3	3	3	2
Gently sloping and sloping land, sandy and clayey sediments:								
Gently sloping land, sandy and clayey sediments	4	4	4	4	4	4	4	3
Sloping land, sandy and clayey sediments	4	4	4	4	4	4	4	3
Sloping land, sandy and clayey sediments, eroded phase	4	4	4	4	4	4	4	3
Gilead sandy loam:								
Gently sloping phase	2	3	3	3	3	3	2	2
Sloping phase	2	3	3	3	3	3	2	2
Gilead loamy sand:								
Gently sloping thick surface phase	2	3	3	3	3	3	2	2
Sloping thick surface phase	3	3	3	3	3	3	2	2
Goldsboro sandy loam	1	2	1	2	2	3	2	1
Grady sandy loam	2	3	4	2	4	4	2	2
Gullied land	4	4	4	4	4	4	4	4
Huckabee sand:								
Gently sloping phase	3	3	3	3	4	2	3	2
Sloping phase	3	3	3	3	4	2	3	3
Huckabee loamy sand, gently sloping phase	3	3	3	3	4	2	3	2
Independence loamy sand, gently sloping phase	2	2	2	3	4	2	3	2
Izagora fine sandy loam	2	3	3	2	3	3	2	2
Kalmia sandy loam:								
Level phase	2	2	2	2	2	2	2	1
Gently sloping phase	2	2	2	2	2	2	2	1
Kalmia loamy sand:								
Level thick surface phase	2	2	2	2	2	2	2	2
Gently sloping thick surface phase	2	2	2	2	2	2	2	2
Klej loamy sand	3	4	3	3	4	4	3	2

TABLE 2.—*Relative suitability of the soils for specified crops*—Continued

[Number 1 means soil is well suited; 2 means fairly well suited; 3 means less well suited; and 4 means not suited]

Soil	Corn	Cotton	Tobacco	Soybeans	Tomatoes	Watermelons	Oats	Pasture
Lakeland sand:								
Gently sloping phase	3	3	3	3	4	2	3	2
Sloping phase	3	3	3	3	4	2	3	3
Strongly sloping phase	4	4	4	4	4	4	4	3
Level shallow phase	3	2	2	3	3	2	3	2
Sloping shallow phase	3	3	3	3	4	3	3	2
Gently sloping shallow phase	3	3	3	3	4	2	3	2
Lakewood sand, gently sloping phase	4	4	4	4	4	4	4	4
Leaf fine sandy loam	3	4	4	2	4	4	3	2
Local alluvial land	2	2	2	2	2	3	2	2
Lynchburg sandy loam	1	2	1	1	3	4	2	1
Marlboro sandy loam:								
Level phase	1	1	1	1	2	2	1	1
Gently sloping phase	1	1	1	1	2	2	1	1
Marsh	4	4	4	4	4	4	4	4
Mixed alluvial land	4	4	4	4	4	4	4	3
Myatt sandy loam	3	4	4	3	4	4	3	3
Norfolk sandy loam:								
Level phase	1	1	1	1	2	1	1	1
Gently sloping phase	1	1	1	1	2	1	1	1
Sloping phase	2	2	2	2	3	1	2	2
Level thin solum phase	1	1	1	1	2	1	1	1
Gently sloping thin solum phase	1	1	1	1	2	1	1	1
Norfolk fine sandy loam:								
Level phase	1	1	1	1	2	1	1	1
Gently sloping phase	1	1	1	1	2	1	1	1
Norfolk loamy sand:								
Level thick surface phase	2	2	2	2	3	1	2	2
Gently sloping thick surface phase	2	2	2	2	3	1	2	2
Sloping thick surface phase	2	3	3	2	3	1	2	2
Strongly sloping thick surface phase	3	3	3	3	4	2	3	3
Okenee loam	3	4	4	2	4	4	3	2
Pits and dumps	4	4	4	4	4	4	4	4
Plummer loamy sand	4	4	4	4	4	4	4	3
Portsmouth mucky loam	2	4	4	2	4	4	2	1
Portsmouth sandy loam	2	4	4	2	4	4	2	1
Rains sandy loam	3	4	4	3	4	4	3	3
Ruston sandy loam:								
Level phase	2	1	1	1	1	1	2	1
Gently sloping phase	2	1	1	1	1	1	2	1
Eroded sloping phase	2	2	3	2	2	2	2	2
Ruston fine sandy loam:								
Level phase	1	1	1	1	1	1	1	1
Gently sloping phase	1	1	1	1	1	1	1	1
Ruston loamy sand:								
Level thick surface phase	2	2	2	2	3	1	2	2
Gently sloping thick surface phase	2	2	2	2	3	1	2	2
Sloping thick surface phase	2	3	3	2	3	1	2	2
Rutlege loamy sand	3	4	4	3	4	4	3	2
Rutlege mucky loam	3	4	4	3	4	4	3	2
Swamp	4	4	4	4	4	4	4	4
Vaucluse sandy loam:								
Gently sloping phase	3	3	3	3	4	3	3	3
Sloping phase	3	3	3	3	4	3	3	3
Strongly sloping phase	4	4	4	4	4	4	4	4
Moderately steep phase	4	4	4	4	4	4	4	4
Eroded sloping phase	4	4	4	4	4	4	4	3
Eroded strongly sloping phase	4	4	4	4	4	4	4	4
Vaucluse loamy sand:								
Gently sloping thick surface phase	3	3	3	3	4	3	3	3
Sloping thick surface phase	3	3	4	3	4	3	3	3
Wahee very fine sandy loam	2	3	3	2	3	4	2	2
Wahee sandy loam	2	3	3	2	3	4	2	2
Wehadkee silt loam	4	4	4	4	4	4	4	2

Use of Soils for Woodland[1]

The original forests covered much of Darlington County. They consisted of pine and of oak, hickory, and other hardwoods (*10*).[2] These virgin forests provided materials, first for the naval stores industry and then for the logging industry. Later, the second-growth stands again supplied materials for the naval stores industry, and still later, for the logging industry. By the beginning of this century, the remaining forests were cut over and production for the naval stores and logging industries had declined (*9*). A survey made in 1947, however, showed that about 59.7 percent of the total land area of the county was still in woodland.

Pine, cypress, and commercially valuable hardwoods are among the trees now grown for local markets. Wood-processing plants in the county consist of five stationary sawmills, five portable sawmills, two planing mills, four veneer and furniture stockmills, one pulp and paper products mill, and one pulpwood yard. One sawmill has a wood chipping unit that processes slabs of hardwood (except oak and ash) into chips for pulping.

Interest in woodland conservation is increasing among the farmers in the county. During the 1957–58 planting season, 121 landowners planted 1,024,500 seedlings. Of these, 812,500 were slash pine; 186,000, loblolly pine; 19,000, longleaf pine; and 7,000, Arizona cypress. There are 11 certified tree farms, occupying 24,773 acres in the county. Some of the larger woodland areas are managed by professional foresters.

Soil Properties Affecting Tree Production

The soils of Darlington County differ greatly in their suitability for trees. The combinations of species, or forest types, that grow on a particular soil are determined largely by the site. The site, in turn, is determined largely by such factors as position on the landscape, elevation, and the kind of soil.

Among the most important factors that affect the productive capacity of the soil for growing trees and that thus affect the site is the ability of the soil to maintain optimum moisture and to permit the development of an adequate root system. Other significant characteristics of the soil that affect the site are the thickness of the surface layer, the natural supply of plant nutrients, the texture and consistence of the soil material, the aeration, the depth to mottling, and the depth of the water table.

In the Coastal Plains, drainage is an important factor that affects the suitability of a site for trees (*2*). Depending on the relative topographic position, the amount of organic matter in the soil, and the degree of and depth to mottling, drainage is classified as excessive, good, somewhat poor, and very poor.

Potential soil productivity is rated by determining the average site index of different soils. The site index is determined by measuring the total height, attained at 50 years of age, of representative trees of the dominant species. Some sites are suited to hardwoods and others to pines. On some of the better hardwood sites, it is not advisable to grow pines. On others, pines will give the best returns, even with the added cost of controlling competition from hardwoods.

[1] GEORGE E. SMITH, JR., woodland conservationist, SCS, assisted with this section.

[2] Italic numbers in parentheses refer to Literature Cited, p. 87.

Woodland Suitability Groupings

To assist owners of woodland in planning the use of their soils, the soils of the county have been placed in 17 woodland suitability groups, which are listed in table 3. Each group is made up of soils that require the use of similar kinds of conservation practices and other management and that have comparable potential productivity. For each group, ratings are given according to the capabilities, the limitations, and the hazards on soils in woodland use. Site index ratings are given for each group, and suitable trees are listed by species priority.

The expected hazard from competition by other plants is rated in table 3 as slight, moderate, or severe. A rating of slight means that competition from other plants is no special problem; of moderate, that plant competition develops but generally does not prevent an adequate stand from becoming established; and of severe, that plant competition prevents trees from restocking naturally.

Ratings for equipment limitations—the soil characteristics that restrict or prohibit the use of equipment commonly used in tending and harvesting the trees—are also given according to the terms slight, moderate, and severe. By slight is meant there is no restriction in the kind of equipment or in the time of year it is used; by moderate is meant that there is a seasonal restriction of less than 3 months in using the equipment and that the equipment can be expected to damage the roots of the trees to some extent; and by severe is meant that there is a seasonal restriction of more than 3 months in the use of equipment and that the equipment can be expected to cause severe damage to the roots of the trees.

Seedling mortality refers to the expected degree of mortality of seedlings as influenced by kinds of soil. The ratings are: Slight—ordinarily, adequate natural regeneration will take place; moderate—natural regeneration cannot always be relied upon for adequate and immediate restocking; severe—much replanting, special seedbed preparation, and superior planting techniques are needed to assure adequate restocking.

Windthrow hazard is an evaluation of soil characteristics that control the development of tree roots affecting windfirmness. The ratings are: Slight—no special problem is recognized; moderate—root development of designated species is adequate for stability, except for periods of excessive wetness and during periods of greatest wind velocity; severe—depth of tree rooting does not give adequate stability.

Erosion hazard refers to the potential erosion hazard of the soil when it is managed according to currently acceptable standards. The ratings are based on the increasing risk of erosion.

Except for site index ratings, the ratings in table 3 were based largely upon the experience and judgment of local soil scientists, woodland conservationists, foresters, and landowners. They represent the best information now available about the way soil influences the growth and management of trees. The ratings are tentative and are subject to revision as more information becomes available.

TABLE 3.—*Woodland suitability*

Mapping symbol	Woodland group and soils	Site index [1] for group				Species priority
		Loblolly pine	Longleaf pine	Shortleaf pine	Slash pine [2]	
	Group 1: Soils on flood plains and upland soils formed from local alluvium—	100	70	70	100	All commercial hardwoods grown in the area and loblolly and slash pines.
Ch	Chewacla silt loam.					
Cn	Congaree fine sandy loam.					
Co	Congaree silt loam.					
Lo	Local alluvial land.					
Wh	Wehadkee silt loam.					
	Group 2: Dominantly well drained soils with friable subsoils—	90	70	70	90	Loblolly, slash, longleaf, and shortleaf pines
CaA	Cahaba fine sandy loam, level phase.					
CaB	Cahaba fine sandy loam, gently sloping phase.					
GeB	Gilead sandy loam, gently sloping phase.					
KsA	Kalmia sandy loam, level phase.					
KsB	Kalmia sandy loam, gently sloping phase.					
MaA	Marlboro sandy loam, level phase.					
MaB	Marlboro sandy loam, gently sloping phase.					
NfA	Norfolk fine sandy loam, level phase.					
NfB	Norfolk fine sandy loam, gently sloping phase.					
NsA	Norfolk sandy loam, level phase.					
NsB	Norfolk sandy loam, gently sloping phase.					
NsC	Norfolk sandy loam, sloping phase.					
RfA	Ruston fine sandy loam, level phase.					
RfB	Ruston fine sandy loam, gently sloping phase.					
RsA	Ruston sandy loam, level phase.					
RsB	Ruston sandy loam, gently sloping phase.					
	Group 3: Poorly drained soils with tough, plastic subsoils through which water moves slowly—	90	70	70	90	Loblolly and slash pines; sweetgum and blackgum.
Cv	Coxville fine sandy loam.					
Cx	Coxville sandy loam.					
Gr	Grady sandy loam.					
Ls	Leaf fine sandy loam.					
	Group 4: Excessively drained loamy sand with 2 to 6 percent slopes—	80	70	[3] 70	80	Loblolly, slash, and longleaf pines
InB	Independence loamy sand, gently sloping phase.					
	Group 5: Poorly drained to very poorly drained soils with a high water table—	90	70	[3] 70	90	Sweetgum, tupelo, and cypress and loblolly, slash, and pond pines.
My	Myatt sandy loam.					
Ok	Okenee loam.					
Pm	Plummer loamy sand.					
Po	Portsmouth mucky loam.					
Ps	Portsmouth sandy loam.					
Ra	Rains sandy loam.					
Ru	Rutlege loamy sand.					
Ry	Rutlege mucky loam.					
	Group 6: Steep, eroded soil with a subsoil through which water moves slowly—	80	70	70	80	Loblolly, slash, and shortleaf pines
CfD2	Caroline fine sandy loam, eroded strongly sloping phase.					
	Group 7: Excessively drained sands mainly with 2 to 10 percent slopes—	80	70	70	80	Slash, loblolly, and longleaf pines
EsB	Eustis sand, gently sloping phase.					
EsC	Eustis sand, sloping phase.					
EmB	Eustis loamy sand, gently sloping phase.					
HcB	Huckabee sand, gently sloping phase.					
HcC	Huckabee sand, sloping phase.					
HbB	Huckabee loamy sand, gently sloping phase.					
LaB	Lakeland sand, gently sloping phase.					
LkA	Lakeland sand, level shallow phase.					
LkC	Lakeland sand, sloping shallow phase.					
LkB	Lakeland sand, gently sloping shallow phase.					
	Group 8: Moderately well drained soils with fine-textured subsoils through which water moves slowly—	80	70	70	80	Loblolly and slash pines; sweetgum and blackgum.
FfA	Flint fine sandy loam, level phase.					
Wa	Wahee sandy loam.					
Wf	Wahee very fine sandy loam.					

See footnotes at end of table.

grouping of soils

Interpretations for woodland conservation					Remarks
Plant competition	Equipment limitations	Seedling mortality	Windthrow hazard	Erosion hazard	
Moderate to severe.	Moderate	Slight	Slight	Slight	Characteristics of Local alluvial land are varied; site index for loblolly pine on Congaree fine sandy loam is 90, and on Congaree silt loam it is 110; site indexes for some kinds of hardwoods are equivalent to or higher than the average shown for loblolly pine.
Moderate	Slight	Slight	Slight	Slight	Wind erosion occurs in open areas; site indexes for longleaf pine on the Gilead soil and for loblolly pine on the Norfolk soils are lower than the average indicated for this group.
Moderate	Moderate	Slight	Slight	Slight	Yellow-poplar is a desirable species on Leaf fine sandy loam.
Moderate	Slight	Slight	Slight	Slight	Wind erosion occurs in open areas.
Severe	Severe	Severe	Slight	Slight	Controlled drainage may be needed to establish some species.
Moderate	Severe	Moderate	Slight	Severe.	
Moderate to severe.	Slight	Moderate to severe.	Slight	Slight to moderate.	Wind erosion occurs in open areas; for the Eustis soils the site index is 60 for longleaf pine and 50 for shortleaf pine; in the Sand Hills, site indexes of all soils in this group are 10 points less than shown here.
Moderate	Moderate	Slight to moderate.	Moderate	Slight	The site index for longleaf and shortleaf pines on the Wahee soils is 60.

TABLE 3.—*Woodland suitability*

Mapping symbol	Woodland group and soils	Site index [1] for group: Loblolly pine	Site index [1] for group: Longleaf pine	Site index [1] for group: Shortleaf pine	Site index [1] for group: Slash pine [2]	Species priority
	Group 9: Dominantly well drained soils with thick surface soils and friable subsoils—	80	70	70	80	Loblolly, slash, longleaf, and shortleaf pines.
GdB	Gilead loamy sand, gently sloping thick surface phase.					
GdC	Gilead loamy sand, sloping thick surface phase.					
GeC	Gilead sandy loam, sloping phase.					
KaA	Kalmia loamy sand, level thick surface phase.					
KaB	Kalmia loamy sand, gently sloping thick surface phase.					
NoA	Norfolk loamy sand, level thick surface phase.					
NoB	Norfolk loamy sand, gently sloping thick surface phase.					
NoC	Norfolk loamy sand, sloping thick surface phase.					
NoD	Norfolk loamy sand, strongly sloping thick surface phase.					
NtA	Norfolk sandy loam, level thin solum phase.					
NtB	Norfolk sandy loam, gently sloping thin solum phase.					
RsC2	Ruston sandy loam, eroded sloping phase.					
RtA	Ruston loamy sand, level thick surface phase.					
RtB	Ruston loamy sand, gently sloping thick surface phase.					
RtC	Ruston loamy sand, sloping thick surface phase.					
	Group 10: Somewhat poorly drained to moderately well drained sandy loams with friable subsoils—	90	70	60	90	Loblolly, longleaf, and slash pines
Df	Dunbar fine sandy loam.					
Ds	Dunbar sandy loam.					
Go	Goldsboro sandy loam.					
Iz	Izagora fine sandy loam.					
Ly	Lynchburg sandy loam.					
	Group 11: Somewhat poorly drained soil with friable subsoil—	80	70	70	80	Loblolly, slash, and pond pines; sweetgum and blackgum.
Ky	Klej loamy sand.					
	Group 12: Moderately well drained soil with tough, plastic subsoil and 6 to 10 percent slopes—	70	[3] 60	[3] 60	70	Loblolly and slash pines; sweetgum, yellow-poplar, and blackgum.
FfC	Flint fine sandy loam, sloping phase.					
	Group 13: Excessively drained sands with 6 to 10 percent slopes—	70	60	60	70	Longleaf, slash, and loblolly pines
LaC	Lakeland sand, sloping phase.					
	Group 14: Soils with cemented subsoils through which water moves slowly—	60	50	50	60	Longleaf, slash, loblolly, shortleaf, and Virginia pines.
GaB	Gently sloping land, sandy and clayey sediments.					
ScC	Sloping land, sandy and clayey sediments.					
ScC2	Sloping land, sandy and clayey sediments, eroded phase.					
VsB	Vaucluse sandy loam, gently sloping phase.					
VsC	Vaucluse sandy loam, sloping phase.					
VsD	Vaucluse sandy loam, strongly sloping phase.					
VsE	Vaucluse sandy loam, moderately steep phase.					
VsC2	Vaucluse sandy loam, eroded sloping phase.					
VsD2	Vaucluse sandy loam, eroded strongly sloping phase.					
VaB	Vaucluse loamy sand, gently sloping thick surface phase.					
VaC	Vaucluse loamy sand, sloping thick surface phase.					
	Group 15: Excessively drained sand with 10 to 15 percent slopes—	50	40	40	50	Longleaf, slash, and loblolly pines
LaD	Lakeland sand, strongly sloping phase.					
	Group 16: Excessively drained sand that is very low in natural supply of plant nutrients—	60	50	[3] 50	60	Slash and longleaf pines
LwB	Lakewood sand, gently sloping phase.					
	Group 17: Miscellaneous land types [4]—	([5])	([5])	([5])	([5])	Various kinds of pines and hardwoods
Gu	Gullied land.					
Mx	Mixed alluvial land.					
Pd	Pits and dumps.					
Sw	Swamp.					

[1] Site index is total height of dominant trees at 50 years of age and indicates potential productivity.
[2] Assume that the growth of slash pine will be equal to that of loblolly pine on the same soils.

grouping of soils—Continued

Interpretations for woodland conservation					Remarks
Plant competition	Equipment limitations	Seedling mortality	Windthrow hazard	Erosion hazard	
Moderate	Slight	Moderate	Slight	Slight to moderate.	Wind erosion occurs in open areas; Ruston sandy loam, eroded sloping phase, has a thinner surface soil than the other soils in this group; for the Gilead soils the site index for shortleaf pine is 60 in some places.
Moderate	Moderate	Slight	Slight	Slight	The site index for loblolly pine on Lynchburg sandy loam is 80; controlled drainage may improve the site quality and facilitate management.
Severe	Moderate	Moderate	Slight	Slight	Controlled drainage may improve the site and facilitate management; site index for slash pine is 10 points less.
Moderate	Moderate	Moderate	Slight	Moderate.	
Severe	Slight	Severe	Slight	Slight	In the Sand Hills, site indexes are 10 points less than shown here.
Moderate	Slight to moderate.	(5)	Severe	Severe	Virginia pine (*Pinus virginiana*) grows in the western part of the county on some of these soils; small sawlog-size or pulpwood rotations may be feasible; the site index for Vaucluse sandy loam, gently sloping phase, and for Vaucluse loamy sand, gently sloping thick surface phase, is 10 points higher than the average shown for the group.
Severe	Slight	Severe	Slight	Slight	Pulpwood-size rotations may be feasible.
Severe	Slight	Severe	Slight	Slight	Small sawlog-size or pulpwood-size rotations may be feasible.
(5)	(5)	(5)	(5)	(5).	

[3] Data extrapolated from measurements on soils having similar characteristics.
[4] Marsh was not placed in a woodland group because it is not suited to trees.
[5] Varied.

In table 4 are given the averages of site indexes for four kinds of pines grown on different kinds of soil in the Coastal Plain area of South Carolina. In this table the soils on which the trees were measured are listed, and the number of plots examined is given for each. The figures summarize the results of field studies made by the Soil Conservation Service and the South Carolina State Commission of Forestry. The values reported are tentative and are subject to revision as more information becomes available. The site indexes for slash pine were not

TABLE 4.—*Averages of site indexes measured for four kinds of pines on several soils in Coastal Plain section of South Carolina*

Soil	Loblolly		Longleaf		Shortleaf		Slash	
	Site index	Plots sampled	Site index	Plots sampled	Site index	Plots sampled	Site index	Plots sampled
		Number		*Number*		*Number*		*Number*
Caroline fine sandy loam, eroded strongly sloping phase	83	1	--	--	--	--	--	--
Chewacla silt loam	100	2	73	1	--	--	--	--
Congaree fine sandy loam	91	1	--	--	--	--	--	--
Congaree silt loam	110	2	--	--	--	--	--	--
Coxville sandy loam	89	19	71	10	--	--	--	--
Coxville fine sandy loam	89	19	71	10	--	--	--	--
Dunbar sandy loam	89	11	74	3	--	--	--	--
Eustis sand, gently sloping phase	77	6	63	2	--	--	--	--
Flint fine sandy loam, level phase	76	1	67	3	--	--	--	--
Goldsboro sandy loam	84	5	76	4	71	6	--	--
Gilead sandy loam, gently sloping phase	88	2	62	3	69	2	--	--
Gilead loamy sand, gently sloping thick surface phase	78	5	65	3	59	1	--	--
Gilead sandy loam, thick surface phase [1]	--	--	69	2	--	--	--	--
Grady fine sandy loam [1]	89	15	70	4	67	1	87	1
Huckabee sand, gently sloping phase	80	2	--	--	75	1	--	--
Independence sand [1]	85	1	70	1	--	--	--	--
Izagora fine sandy loam	92	5	68	1	--	--	--	--
Kalmia sandy loam, level phase	90	2	--	--	--	--	--	--
Klej loamy sand	80	4	67	13	65	1	94	1
Lakeland sand, nearly level phase [1, 2]	70	8	60	20	56	1	--	--
Lakeland sand, gently sloping phase [2]	66	4	57	26	--	--	--	--
Lakeland sand, sloping phase [2]	--	--	52	7	58	1	--	--
Lakeland sand, nearly level phase [1, 3]	74	14	68	10	66	1	--	--
Lakeland sand, gently sloping phase [3]	76	14	66	8	62	2	--	--
Lakeland sand, sloping phase [3]	68	2	65	1	53	1	--	--
Lakeland sand, level shallow phase	81	14	67	13	70	2	--	--
Lakeland sand, gently sloping shallow phase	78	9	68	11	73	2	--	--
Lakeland sand, sloping shallow phase	--	--	63	3	--	--	82	1
Lakeland sand, strongly sloping shallow phase [1]	72	1	--	--	--	--	--	--
Leaf sandy loam [1]	92	7	--	--	--	--	--	--
Lynchburg sandy loam	85	16	71	29	--	--	92	4
Marlboro fine sandy loam, level phase [1]	--	--	68	1	--	--	--	--
Marlboro fine sandy loam, gently sloping phase [1]	89	2	--	--	--	--	--	--
Myatt sandy loam	89	1	--	--	--	--	--	--
Norfolk sandy loam, level phase	84	4	76	3	68	1	--	--
Norfolk sandy loam, gently sloping phase	80	4	67	4	--	--	--	--
Norfolk sandy loam, level thick surface phase [1]	81	4	72	5	--	--	--	--
Norfolk sandy loam, gently sloping thick surface phase [1]	85	4	69	2	--	--	--	--
Norfolk sandy loam, sloping thick surface phase [1]	79	1	--	--	--	--	--	--
Plummer loamy fine sand [1]	93	2	67	2	--	--	--	--
Portsmouth sandy loam	92	21	69	8	--	--	87	3
Portsmouth loam [1]	92	7	72	1	--	--	--	--
Rains fine sandy loam [1]	93	3	--	--	--	--	--	--
Ruston sandy loam, level phase	86	1	--	--	--	--	--	--
Ruston sandy loam, gently sloping phase	88	2	74	1	--	--	--	--
Ruston sandy loam, eroded gently sloping phase [1]	81	1	77	1	--	--	--	--
Ruston sandy loam, severely eroded, gently sloping phase [1]	79	1	--	--	--	--	--	--
Rutlege loamy sand	91	11	69	6	--	--	--	--
Vaucluse sandy loam, gently sloping phase	70	2	60	2	--	--	--	--
Vaucluse sandy loam, sloping phase	--	--	54	2	--	--	--	--
Vaucluse sandy loam, eroded sloping phase	--	--	--	--	56	1	--	--
Vaucluse sandy loam, strongly sloping phase	--	--	54	1	--	--	--	--
Vaucluse sandy loam, eroded strongly sloping phase	65	1	60	1	--	--	--	--
Vaucluse sandy loam, gently sloping thick surface phase [1]	73	1	63	4	62	1	--	--
Vaucluse sandy loam, sloping thick surface phase [1]	57	1	59	5	--	--	--	--
Vaucluse sandy loam, strongly sloping thick surface phase [1]	--	--	55	2	--	--	--	--
Wehadkee silt loam	106	3	--	--	--	--	--	--
Wahee fine sandy loam [1]	80	6	59	1	64	2	--	--

[1] This soil not mapped in Darlington County.
[2] Soil is in the Sand Hills.
[3] Soil is below the Sand Hills.

based on measurements made in this county, but were based on plot measurements on similar soils in the lower Coastal Plain of South Carolina. The indexes were found to be similar to those of loblolly pine.

Information about site indexes provides a basis for relating published research on timber volume production by species, age, and site index classes to the different kinds of soils shown on the soil map. Table 5, based on published research (*8*), shows how site index ratings can be converted readily into cords or into cubic or board foot measure.

TABLE 5.—*Stand and yield information per acre for well-stocked, unmanaged, normally growing loblolly, longleaf, shortleaf, and slash pines*

[Statistics in this table are compiled from United States Department of Agriculture Miscellaneous Publication No. 50 (*8*)]

LOBLOLLY PINE

Site index	Age	Total merchantable volume			Total height of average dominant trees	Average diameter at breast height	Basal area at breast height	Trees
	Year	*Cu. ft.*	*Cords*	*Bd. ft. (Scribner)*	*Feet*	*Inches*	*Sq. ft.*	*Number*
60	20	1,500	12	----------	32	3.6	121	1,600
	30	2,750	25	1,250	45	5.4	138	850
	40	3,700	35	4,500	54	6.8	147	585
	50	4,300	41	8,550	60	7.9	152	440
	60	4,700	46	12,250	64	8.9	156	360
	70	5,000	49	15,250	67	9.7	158	310
	80	5,200	51	17,550	69	10.4	160	275
70	20	1,900	17	100	38	4.3	125	1,185
	30	3,350	31	3,500	52	6.5	143	640
	40	4,500	42	9,400	63	8.1	151	435
	50	5,200	50	15,200	70	9.4	157	325
	60	5,700	55	19,600	75	10.6	160	270
	70	6,000	59	22,550	78	11.5	163	230
	80	6,200	62	24,600	80	12.3	165	205
80	20	2,350	22	700	43	5.0	129	950
	30	4,000	38	6,500	59	7.4	147	510
	40	5,300	51	14,800	72	9.2	156	345
	50	6,150	60	21,700	80	10.7	162	255
	60	6,650	66	26,400	85	12.0	165	210
	70	7,000	70	29,500	89	13.1	168	185
	80	7,300	73	31,550	92	14.0	170	160
90	20	2,850	27	1,000	48	5.6	133	790
	30	4,700	46	10,700	67	8.2	152	420
	40	6,200	61	20,550	81	10.2	162	290
	50	7,200	71	28,250	90	12.0	167	220
	60	7,800	78	33,100	96	13.4	171	180
	70	8,200	82	36,600	100	14.6	174	150
	80	8,550	85	39,100	103	15.6	176	135
100	20	3,300	32	2,750	54	6.1	138	690
	30	5,400	53	14,800	74	9.0	158	375
	40	7,150	71	26,700	90	11.2	168	255
	50	8,400	84	35,050	100	13.1	174	190
	60	9,150	92	41,000	107	14.6	178	155
	70	9,600	96	44,750	112	15.9	181	135
	80	9,950	100	47,400	115	17.1	182	115
110	20	3,850	37	4,300	59	6.6	145	615
	30	6,200	62	19,200	81	9.7	166	335
	40	8,200	82	32,800	99	12.1	176	225
	50	9,650	96	42,500	110	14.1	182	170
	60	10,500	106	49,200	118	15.9	186	140
	70	11,150	112	53,100	122	17.3	189	120
	80	11,500	116	55,900	126	18.4	191	105
120	20	4,400	42	6,500	64	7.1	152	560
	30	7,150	70	24,350	89	10.4	174	305
	40	9,400	93	39,600	108	13.0	185	205
	50	11,000	110	50,100	120	15.1	192	155
	60	12,050	121	57,250	128	17.0	196	125
	70	12,700	128	62,000	133	18.5	199	105
	80	13,150	134	65,000	137	19.7	201	95

TABLE 5.—*Stand and yield information per acre for well-stocked, unmanaged, normally growing loblolly, longleaf, shortleaf, and slash pines*—Continued

LONGLEAF PINE

Site index	Age	Total merchantable volume			Total height of average dominant trees	Average diameter at breast height	Basal area at breast height	Trees
	Year	*Cu. ft.*	*Cords*	*Bd. ft. (Scribner)*	*Feet*	*Inches*	*Sq. ft.*	*Number*
50	20	500	4	----------	26	2. 8	64	1, 410
	30	1, 150	11	200	37	4. 1	78	900
	40	1, 700	17	900	45	5. 1	88	625
	50	2, 150	21	2, 100	50	5. 9	95	505
	60	2, 550	25	3, 700	55	6. 6	100	430
	70	2, 850	28	5, 400	58	7. 2	104	375
	80	3, 150	31	7, 250	61	7. 8	106	335
60	20	1, 000	8	50	31	3. 3	79	1, 290
	30	1, 900	19	900	44	4. 9	97	815
	40	2, 750	27	2, 800	53	6. 0	108	575
	50	3, 450	34	5, 900	60	7. 0	118	465
	60	4, 000	40	9, 300	65	7. 8	124	395
	70	4, 500	45	12, 350	70	8. 5	128	345
	80	4, 900	49	15, 000	73	9. 1	131	305
70	20	1, 500	14	200	36	3. 8	92	1, 150
	30	2, 700	28	2, 000	52	5. 5	113	730
	40	3, 800	39	6, 100	62	6. 8	127	515
	50	4, 750	48	11, 400	70	7. 9	138	415
	60	5, 600	55	16, 400	77	8. 8	145	355
	70	6, 200	62	20, 400	82	9. 6	150	305
	80	6, 800	67	23, 700	86	10. 3	153	270
80	20	2, 050	20	550	41	4. 3	102	1, 050
	30	3, 500	36	3, 800	59	6. 1	124	655
	40	4, 900	49	10, 800	71	7. 6	140	465
	50	6, 000	61	17, 600	80	8. 8	152	375
	60	7, 000	70	23, 500	87	9. 8	160	315
	70	7, 850	78	28, 300	93	10. 6	166	270
	80	8, 550	85	32, 100	98	11. 5	169	240
90	20	2, 550	26	1, 000	46	4. 7	109	910
	30	4, 250	43	6, 500	66	6. 7	134	575
	40	5, 800	59	15, 800	80	8. 3	150	405
	50	7, 150	72	24, 100	90	9. 6	162	330
	60	8, 350	84	31, 000	98	10. 7	170	275
	70	9, 400	94	36, 200	105	11. 6	176	240
	80	10, 250	103	40, 600	110	12. 5	180	210
100	20	2, 950	30	1, 700	52	5. 2	114	790
	30	4, 900	49	10, 150	74	7. 4	140	500
	40	6, 600	66	20, 200	89	9. 0	158	355
	50	8, 200	82	29, 550	100	10. 5	170	285
	60	9, 500	96	37, 400	109	11. 7	179	240
	70	10, 700	108	43, 000	110	12. 7	185	205
	80	11, 600	118	48, 100	123	13. 7	189	185
110	20	3, 250	34	2, 550	57	5. 6	118	690
	30	5, 350	54	13, 000	81	7. 9	144	445
	40	7, 200	73	24, 440	98	9. 8	162	315
	50	8, 950	90	34, 200	110	11. 4	176	250
	60	10, 500	106	42, 100	120	12. 7	185	210
	70	11, 700	119	48, 600	128	13. 8	192	180
	80	12, 700	130	54, 000	135	14. 9	196	160

SHORTLEAF PINE

Site index	Age	Cu. ft.	Cords	Bd. ft. (Scribner)	Feet	Inches	Sq. ft.	Number
50	20	----------	----------	----------	25	2. 5	139	3, 425
	30	2, 040	23	50	35	3. 9	158	1, 855
	40	2, 980	33	1, 450	44	5. 1	162	1, 085
	50	3, 970	43	4, 400	50	6. 1	162	760
	60	4, 430	48	8, 150	55	6. 9	162	590
	70	4, 780	51	11, 600	59	7. 6	162	485
	80	5, 050	53	14, 400	62	8. 3	162	420
60	20	1, 060	12	----------	30	2. 9	142	2, 520
	30	2, 880	32	750	42	4. 6	162	1, 370
	40	4, 200	46	4, 400	52	6. 0	166	815

TABLE 5.—*Stand and yield information per acre for well-stocked, unmanaged, normally growing loblolly, longleaf, shortleaf, and slash pines*—Continued

SHORTLEAF PINE—Continued

Site index	Age	Total merchantable volume			Total height of average dominant trees	Average diameter at breast height	Basal area at breast height	Trees
	Year	*Cu. ft.*	*Cords*	*Bd. ft. (Scribner)*	*Feet*	*Inches*	*Sq. ft.*	*Number*
60	50	5, 080	54	10, 600	60	7. 2	166	570
	60	5, 690	60	15, 850	66	8. 2	166	445
	70	6, 170	65	19, 700	71	9. 0	166	370
	80	6, 520	68	22, 600	74	9. 8	166	315
70	20	1, 600	18		34	3. 5	145	1, 965
	30	3, 720	41	2, 400	49	5. 4	165	1, 060
	40	5, 210	56	9, 900	61	7. 0	169	625
	50	6, 250	66	17, 850	70	8. 3	169	440
	60	7, 000	73	23, 450	77	9. 4	169	345
	70	7, 580	79	27, 550	82	10. 4	169	285
	80	8, 020	83	30, 700	86	11. 2	169	240
80	20	2, 190	25	200	39	4. 1	147	1, 495
	30	4, 420	48	5, 200	56	6. 2	167	815
	40	6, 100	65	16, 200	70	8. 0	171	485
	50	7, 380	77	24, 900	80	9. 5	171	335
	60	8, 250	85	30, 900	88	10. 8	171	260
	70	8, 920	92	35, 200	94	11. 9	171	215
	80	9, 460	97	38, 550	99	12. 9	171	185
90	20	2, 660	30	1, 100	44	5. 0	148	1, 080
	30	5, 050	54	11, 200	63	7. 3	169	590
	40	7, 000	73	23, 400	78	9. 4	173	345
	50	8, 450	87	32, 400	90	11. 2	173	245
	60	9, 500	98	38, 700	99	12. 8	173	185
	70	10, 280	105	43, 000	106	14. 1	173	160
	80	10, 910	112	46, 500	111	15. 3	173	140
100	20	3, 040	33	3, 200	49	6. 0	149	740
	30	5, 720	60	17, 700	70	8. 8	170	405
	40	7, 940	82	30, 600	87	11. 3	174	235
	50	9, 650	89	40, 000	100	13. 5	174	170
	60	10, 860	111	46, 400	110	15. 3	174	130
	70	11, 780	121	50, 900	117	17. 0	174	110
	80	12, 500	128	54, 400	123	18. 5	174	90

SLASH PINE

Site index	Age	Cu. ft.	Cords	Bd. ft. (Scribner)	Feet	Inches	Sq. ft.	Number
60	20	1, 850	20		36	3. 5	143	2, 035
	30	3, 150	32	1, 050	48	5. 0	152	1, 140
	40	4, 050	40	4, 100	55	6. 3	155	710
	50	4, 750	45	7, 500	60	7. 2	157	550
	60	4, 900	48	10, 500	64	7. 9	158	470
70	20	2, 750	28		42	4. 2	146	1, 445
	30	4, 000	40	3, 500	56	6. 0	156	820
	40	4, 850	49	9, 300	64	7. 5	159	500
	50	5, 850	55	14, 250	70	8. 6	161	390
	60	6, 050	59	17, 400	74	9. 4	162	335
80	20	3, 400	35	900	48	4. 9	148	1, 090
	30	4, 850	48	7, 300	63	7. 0	158	610
	40	5, 850	58	15, 150	73	8. 7	161	380
	50	6, 900	65	20, 350	80	10. 0	163	295
	60	7, 150	69	23, 600	85	10. 8	164	250
90	20	4, 050	41	2, 750	54	5. 6	149	835
	30	5, 550	54	12, 300	71	8. 0	159	470
	40	6, 650	66	20, 600	83	10. 0	163	295
	50	7, 850	73	25, 900	90	11. 4	165	220
	60	8, 100	78	29, 600	95	12. 5	166	195
100	20	4, 600	46	5, 050	61	6. 4	150	625
	30	6, 100	59	16, 850	79	9. 1	160	365
	40	7, 350	72	25, 450	92	11. 4	164	225
	50	8, 700	81	31, 250	100	13. 1	166	175
	60	8, 950	86	35, 400	106	14. 2	167	150

Woodland group 1

The soils in this group (see table 3) are deep and friable. They occur on flood plains or have formed in local alluvium on uplands. Their natural supply of plant nutrients is high, and their content of organic matter is medium. The soils range in drainage from well drained to very poorly drained. Their permeability is moderately rapid to slow.

Within the group, the Congaree soils occur at slightly higher elevations than the other soils and have a coarser texture. They are well drained. The Wehadkee soil occupies lower positions than the other soils in the group. It is very poorly drained—water stands on or near the surface most of the year. Local alluvial land is variable in texture and drainage.

Plant competition on these soils ranges from moderate to severe. In places moderate plant competition delays natural regeneration and slows the initial growth of trees. It does not, however, prevent an adequate stand of desirable species from becoming established. In such places light preparation of the seedbed will help to obtain adequate restocking. Where plant competition is severe, burning, applying chemical sprays, clearing, disking, and using other prescribed methods of preparing the seedbed will help to provide restocking of desirable species.

In most places machinery can be used during 9 months of the year without serious damage to the soils in this group, but the roads need adequate drainage. In some places on the Wehadkee soil and on Local alluvial land, however, the use of equipment is limited to shorter periods and controlled drainage is needed.

Generally, seedling mortality is slight on these soils and the loss of planted stock is less than 25 percent. In some places, however, on the Wehadkee soil and on Local alluvial land, seedling mortality is severe unless drainage is controlled.

Windthrow is not a serious hazard on these soils. Individual trees can be expected to remain standing when released on all sides. Consequently, cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Woodland group 2

The soils in this group (see table 3) are deep and dominantly well drained. They have friable subsoils. The soils occur on uplands and stream terraces. They are moderately permeable, and their moisture-supplying capacity is favorable for the growth of trees.

Plant competition does not prevent desirable species from becoming established on these soils, but it delays the natural regeneration of trees and slows the initial growth. Light preparation of the seedbed will help to obtain an adequate stand; special seedbed preparation is not needed.

Equipment limitation is slight on the soils in this group. Except just after heavy rains, work in the woodlands can be done at any time during the year.

Satisfactory restocking on these soils generally is obtained from the first planting; the loss of seedlings is slight. If adequate sources of seed are available, a satisfactory stand of trees is obtained through natural regeneration.

The hazard of windthrow is not serious. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Generally, the risk of erosion is slight on these soils, but early in spring soil blowing is a hazard in large, open fields. Trees planted in such places need to have strips of cover crops planted between the rows of trees to help protect the seedlings.

Woodland group 3

In this group are deep, level, poorly drained soils with tough, plastic subsoils through which water moves slowly (see table 3). The soils occur in Carolina bays and on the second terraces of streams. They have a good supply of moisture and slow to moderately slow permeability. Generally, they are medium in content of organic matter and in their natural supply of plant nutrients.

Plant competition does not prevent desirable species from becoming established on these soils, but it delays the natural regeneration of trees and slows the initial growth. Light preparation of the seedbed will help to obtain an adequate stand; special seedbed preparation is not needed.

Equipment limitation is moderate. In some places these soils puddle easily during wet periods. Adequate drainage is required for roads.

Satisfactory restocking of trees on these soils generally is obtained from the first planting; the loss of seedlings is slight. If adequate sources of seed are available, a satisfactory stand of trees is obtained through natural regeneration.

The hazard of windthrow is slight. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Woodland group 4

This group consists of only one soil, Independence loamy sand, gently sloping phase (see table 3). This soil is deep, friable, and excessively drained. It has a good supply of moisture. Permeability is very rapid.

Plant competition does not prevent desirable species from becoming established on this soil, but it delays the natural regeneration of trees and slows the initial growth. Special preparation of the seedbed will help in obtaining an adequate stand of desirable trees.

Equipment limitation is slight. Except just after heavy rains, work in the woodlands can be done at any time during the year. Satisfactory restocking on these soils generally is obtained from the first planting, and loss of seedlings is slight. If adequate sources of seed are available, satisfactory natural regeneration of trees is obtained.

Windthrow causes little loss of trees. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Generally, the hazard of erosion is slight. There is a hazard of wind erosion, however, in large, open fields. Trees planted in such places need to have strips of cover

crops planted between the rows to help protect the seedlings and thus prevent the need for replanting.

Woodland group 5

The soils in this group (see table 3) are poorly drained to very poorly drained and have a high water table. Some are in Carolina bays and lack adequate natural outlets. The soils are deep and friable and have a good to excessive supply of moisture. The Rains, Myatt, and Plummer soils have a low content of organic matter, but the Portsmouth, Rutlege, and Okenee soils are high in organic matter. The natural supply of plant nutrients is low to moderate. Permeability is moderate to rapid.

Because of severe plant competition, natural regeneration will not provide adequate restocking of desirable trees on these soils. Prescribed burning, use of chemical sprays, girdling, clearing, disking, and other special practices are needed to prepare the sites before planting them to trees.

Water stands on or near the surface of these soils most of the year. Consequently, use of equipment is severely limited. In some places controlled drainage is needed before a site can be utilized fully. Outlets are not always available, however, and the cost of constructing suitable outlets is high. Some of the soils in this group have friable subsoils that cause the sides of ditches to cave in.

Generally, more than 50 percent of the seedlings in stock planted on these soils is lost. Trees cannot be relied upon to regenerate naturally. Controlled drainage is needed to get adequate stocking of some species, even if rainfall is no more than normal.

Windthrow causes little loss of trees. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Woodland group 6

The only soil in this group is Caroline fine sandy loam, eroded strongly sloping phase (see table 3). This soil is friable and is moderately well drained. It has a shallow surface layer and a thick subsoil through which water moves slowly. The soil is medium in content of organic matter and in its natural supply of plant nutrients. The permeability and the rate of infiltration are slow. The moisture-supplying capacity is moderate.

Plant competition does not prevent desirable species from becoming established on this soil, but it delays the natural regeneration of trees and slows the initial growth. Light preparation of the seedbed will help to obtain an adequate stand; special seedbed preparation is not needed.

The use of equipment is severely limited on this soil. The steep slopes and hazard of erosion prohibit the use of mechanical tree planters, fireplows, and other machines.

Natural regeneration cannot be relied upon to give adequate restocking. Between 20 and 25 percent of the seedlings planted on this soil die. If rainfall is normal, interplanting is generally needed only to fill in a few openings. Trees generally do not grow to maturity. Dieback commonly sets in when the trees are between 20 and 25 years of age, probably because of the limited supply of water in this soil.

The hazard of windthrow is slight, and individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Because of severe erosion, the surface layer of this soil is shallow. In preparing the seedbed for planting trees, care must be taken to prevent further erosion. Building roads on the downslope, clearing for firebreaks, and other activities that remove the natural cover must be avoided.

Woodland group 7

In this group are excessively drained, sandy soils (see table 3). Relief is mainly level to gently sloping, but some of the soils are sloping. The soils are very friable, and roots can penetrate deeply. The soils are low in organic matter and in their natural supply of plant nutrients; they are easily leached of plant nutrients. Permeability is rapid, and the water-holding capacity is low.

Plant competition is moderate on the loamy soils and on the shallow phases of the Lakeland soils. On these soils natural regeneration of trees is delayed and initial growth is slowed; special site preparation is not needed. Light preparation of the seedbed will help to obtain adequate restocking of desirable trees. On the more sandy soils severe plant competition prevents adequate restocking of desirable trees (fig. 8). Prescribed burning, applying chemicals, girdling, clearing, and replanting are needed.

***Figure 8.*—Encroachment of scrub oak in longleaf pine on Lakeland sand, gently sloping phase.**

The use of equipment is not restricted on any of the soils in this group. Loss of seedlings is between 25 and 50 percent on the shallow phases of the Lakeland soils and on the loamy sands. Normally, some replanting is needed to fill in openings. Natural regeneration cannot be relied upon to give adequate restocking. On the more sandy soils of the group, losses of planted stock are generally more than 50 percent. Special preparation of the seedbed and superior planting techniques are needed to assure adequate restocking. Much replanting is also needed.

The hazard of windthrow is slight on these soils. Individual trees can be expected to remain standing if exposed to normal winds.

The hazard of erosion is slight on the level and nearly level soils and moderate on the gently sloping and sloping soils. Building of roads, clearing for firebreaks, plowing furrows, and other operations should be done on the contour to reduce damage by erosion. Open fields are likely to be eroded by wind. They require a protective cover before seeding or planting trees.

The Nantucket pine tip moth sometimes causes severe damage to pines on these soils, particularly to loblolly pine.

Woodland group 8

The soils in this group (see table 3) are level and are moderately well drained. They occur on stream terraces. The soils have thin surface layers and fine-textured subsoils through which water moves slowly. Their content of organic matter and the natural supply of plant nutrients are medium. The soils have a low rate of infiltration and a moderate water-holding capacity.

Generally, natural regeneration of trees is adequate on these soils. Plant competition delays natural regeneration and slows the initial growth of trees, but special site preparation is not needed. Light preparation of the seedbed will help to obtain adequate stands of desirable species. Natural regeneration will not give adequate restocking in years of low rainfall.

The soils in this group puddle and pack easily during wet weather. Consequently, during wet weather the use of equipment should be avoided. Generally, the seasonal restriction on the use of equipment is less than 3 months. During periods of drought, however, it is difficult to use certain types of machinery in some places.

In years of normal rainfall, the loss of planted stock is less than 25 percent and satisfactory restocking is obtained from the first planting. In years of low rainfall, losses of planted stock range from 25 to 50 percent. Furthermore, some planting is needed to fill in openings.

Because the soils have shallow surface layers, there is a moderate hazard of windthrow. Trees develop adequate root systems for stability, except during seasons that are excessively wet or when winds are high.

Woodland group 9

The soils in this group (see table 3) are dominantly well drained. They have thick surface layers and friable subsoils. Their content of organic matter ranges from low to medium. The natural supply of plant nutrients ranges from low to high. Permeability of the soils is moderate. Their water-holding capacity is low to moderate.

Plant competition does not prevent desirable species from becoming established on these soils, but it delays the natural regeneration of trees and slows initial growth. Light preparation of the seedbed will help to obtain adequate stands; special seedbed preparation is not needed.

Within the group, the loamy sands have thicker, sandier surface layers and have less moisture available than the sandy loams. Figure 9 shows a stand of loblolly pines on Norfolk loamy sand, gently sloping thick surface phase, that has become established as the result of natural reseeding.

Figure 9.—**Regeneration of loblolly pines on Norfolk loamy sand, gently sloping thick surface phase; the smaller trees in the foreground have grown from the seed produced by the larger trees in the background.**

The sloping and eroded phases of these soils are somewhat droughty, and some of the soils have compacted subsoils through which water moves slowly. Consequently, when trees are planted on these soils, the seedling mortality ranges from 25 to 50 percent. Some replanting is needed to fill openings, and natural regeneration cannot be depended upon for adequate restocking of trees.

Losses of trees from windthrow is slight. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

The hazard of erosion is slight on the level soils and moderate on the sloping soils. On the sloping soils tillage or other operations that disturb the ground cover should follow the contour of the land. In some places these soils are likely to be eroded by wind. Open fields that are planted to trees will need a protective cover to protect the seedlings.

On the droughty soils the trees have only moderate vigor. Here, some species of pine show damage by forest pests, particularly by the Nantucket pine tip moth.

Woodland group 10

In this group (see table 3) are somewhat poorly drained to moderately well drained sandy loams with friable subsoils. The content of organic matter and the natural supply of plant nutrients are medium. The soils have moderate permeability and water-holding capacity. The rate of infiltration is moderate to high.

Plant competition does not prevent desirable species from becoming established on these soils, but it delays the natural regeneration of trees and slows initial growth. Light preparation of the seedbed will help to obtain adequate stands; special seedbed preparation is not needed.

Because of the sandy subsoils and somewhat poor drainage of these soils, it is difficult to use equipment for logging during wet weather. If feasible, drainage should be controlled in large areas.

Generally, satisfactory restocking is obtained from the first planting of seedlings on these soils. If adequate sources of seed are available, the natural regeneration of trees is satisfactory.

Windthrow is not a serious hazard. Individual trees can be expected to remain standing when released on all sides. Consequently, cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Woodland group 11

Only one soil, Klej loamy sand, is in this group (see table 3). It is a deep, somewhat poorly drained soil that has a friable subsoil. This soil is medium in organic matter and low in its natural supply of plant nutrients. It has a low water-holding capacity.

Plant competition prevents natural regeneration of desirable kinds of trees on this soil. Controlled drainage, prescribed burning, clearing, disking, applying chemicals, girdling, and other management practices are needed to prepare the sites so that seedlings can become established.

Poor drainage limits the use of equipment on this soil and hinders logging during wet weather. Drainage ditches are hard to maintain because of the sandy subsoil.

In planted stands losses of seedlings generally range from 25 to 50 percent. Some replanting is needed to fill in openings; natural regeneration cannot be relied upon for adequate restocking.

Individual trees on this soil can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses from windthrow, except from abnormally high winds.

Woodland group 12

Only one soil, Flint fine sandy loam, sloping phase, is in this group (see table 3). This soil is well drained. It has a thin surface layer and a subsoil of tough, plastic clay. Its slopes range from 6 to 10 percent. This soil has a medium content of organic matter and natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all low.

Plant competition does not prevent desirable species from becoming established on this soil, but it delays the natural regeneration of trees and slows initial growth. If an adequate source of seed is available, light preparation of the seedbed will help to obtain an adequate stand; special seedbed preparation is not needed.

This soil puddles and packs easily. Consequently, the use of heavy equipment is limited.

The growth of trees is restricted on this soil because of the thin surface soil and poor internal drainage. Generally, losses of seedlings range from 25 to 50 percent; some replanting is needed to fill in openings. Natural regeneration cannot be relied upon for adequate restocking.

Individual trees can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

This soil has a moderate risk of erosion because of the shallowness of the surface soil and the strong slopes. If feasible, building of roads, clearing for firebreaks, and other operations should follow the contour of the land.

Woodland group 13

This group consists of only one soil, Lakeland sand, sloping phase (see table 3). This soil is deep and is excessively drained. It has slopes ranging from 6 to 10 percent. The soil is low in organic matter and in its natural supply of plant nutrients. Permeability is rapid. The water-holding capacity is low.

Plant competition prevents natural regeneration from providing adequate stocking of desirable trees. Prescribed burning, applying chemicals, girdling, clearing, disking, and other special management practices are needed to prepare the sites for planting. Seedlings can be replanted as needed, except in fields that have recently been cultivated.

The sandy texture of this soil limits the use of some kinds of equipment, even though the equipment is light.

Loss of seedlings is generally more than 50 percent of the planted stock. Special preparation of the seedbed and superior planting techniques are needed. Also, much replanting is necessary.

Individual trees can be expected to remain standing when released on all sides. Consequently, cutting may be done without danger of future losses by windthrow, except from abnormally high winds.

This soil is likely to be eroded by wind if the protective cover is destroyed. Wherever possible, building of roads, clearing for firebreaks, and other operations that disturb the protective cover should follow the contour of the land.

Woodland group 14

The soils in this group (see table 3) are well drained to excessively drained. Generally, they have thin surface layers and heavy clay or cemented subsoils, but some of the soils have variable characteristics. The soils have many galled spots and some gullies. They are low in organic matter and in their natural supply of plant nutrients. Permeability is moderate to slow. The soils have a low water-holding capacity.

Plant competition does not prevent desirable species from becoming established on these soils, but it delays the natural regeneration of trees and slows the initial growth. If an adequate source of seed is available, light preparation of the seedbed will help to obtain adequate stands. Special preparation of the seedbed is not needed.

Limits on the use of equipment range from slight on the gently sloping soils to moderate on the other soils in the group. In gullies and on strong slopes and galled spots, the use of equipment is restricted, but the seasonal restriction is less than 3 months.

The loss of seedlings varies, but generally it is more than 50 percent of the planted stock. Superior planting techniques are needed, and much replanting is needed to assure adequate restocking. In many of the galled and

gullied areas, mulching is needed. The growth of the trees is hindered by the lack of available water in these soils.

Trees on these soils do not develop adequate root systems for stability. If individual trees are released on all sides, they will be blown over (fig. 10). High winds frequently cause windfall in well-stocked natural stands.

These soils are likely to be severely eroded. Wherever feasible, building of roads, clearing for firebreaks, and other operations that disturb the protective cover should be avoided.

Woodland group 15

The only soil in this group is Lakeland sand, strongly sloping phase (see table 3). This soil is excessively drained. Its slopes range from 10 to 15 percent. It has a low content of organic matter and natural supply of plant nutrients. Permeability is rapid, and the water-holding capacity is low.

This soil is droughty and does not support a normal well-stocked stand of pine comparable to the stands growing on the better sites in the county. The growth of trees is restricted by the lack of available water in the soil. Scrub oaks and other native plants compete severely with pines. Natural regeneration of desirable trees is prevented and cannot adequately restock the land. Applying chemicals, girdling, clearing, disking, and other special management practices are needed to prepare the sites for planting. Replanting is also needed.

The use of certain kinds of equipment is limited on this soil because of the strong slopes and the texture of the soil.

Loss of seedlings is more than 50 percent of the planted stock. Special preparation of the seedbed, superior planting techniques, and much replanting are required to assure adequate restocking.

Individual trees on this soil can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

This soil is likely to be eroded by wind. Building of roads, clearing for firebreaks, and other operations should follow the contour of the land, where feasible.

Woodland group 16

Only one soil, Lakewood sand, gently sloping phase, is in this group (see table 3). This soil is deep and excessively drained. An organic pan occurs at depths between 12 and 24 inches. The content of organic matter and the natural supply of plant nutrients are very low. Permeability is very rapid, and the water-holding capacity is very low.

***Figure 10.*—Windthrow of pines on Vaucluse sandy loam, gently sloping phase.**

Because of the low available supply of water in this soil, plant competition is severe. Natural regeneration cannot be relied upon to adequately restock the land with desirable species. Prescribed burning, applying chemicals, girdling, clearing, disking, and other special management practices are needed to prepare the sites for planting the trees. Replanting is also needed.

Work in the woods can be done at any time during the year, except just after heavy rains. The use of certain types of equipment, however, is limited by the texture of the soil.

Generally, loss of seedlings on this soil is more than 50 percent of the planted stock. Special preparation of the seedbed, superior planting techniques, and much replanting are required to assure adequate restocking.

Individual trees on this soil can be expected to remain standing when released on all sides. Cutting can be done without danger of future losses by windthrow, except from abnormally high winds.

Woodland group 17

This group is made up of miscellaneous land types (see table 3). These land types vary widely in characteristics and in their limitations and potential for trees. The site indexes and potential yields range from low to high. Plant competition, equipment limitation, seedling mortality, windthrow hazard, and the risk of erosion range from slight to severe.

Woodland Protection

If high yields are to be obtained from woodlands, the trees need protection from fire and grazing and insects and diseases should be controlled. This section discusses the control of forest fires in Darlington County and the most prevalent insects and diseases affecting trees. Little of the woodland is used for grazing; consequently, damage by overgrazing is slight.

Fire control

The South Carolina State Commission of Forestry administers forest fire control and protection throughout the State. The burning-permit law, however, is not in force in Darlington County.

The county organization for protection against forest fires consists of one unit ranger, two warden-tractor operators, and three towermen. Assistance in firefighting is furnished by landowners and volunteers.

The towermen, located at three lookout towers, provide fire-detection service. They take measurements daily to determine the danger from fire. Communication is provided by radio or telephone.

One small crawler tractor, equipped with a plow, is used to suppress fires. A heavy unit, which serves six counties, is used for emergencies. A truck or trailer provides transportation for each fire-fighting unit.

Insects and diseases

Generally, attacks from insects and diseases occur in scattered, small areas (*4*). No serious outbreaks have been reported.[3] There is no reported association between specific diseases and kinds of soil within the county.

During the growing season, pines are susceptible to attack by bark beetles. Pines weakened by fire, drought, overmaturity, lightning, wind, or poor growing conditions are particularly susceptible. The most prevalent of the bark beetles are the pine engraver beetles (*Ips*, several species); the southern pine beetle (*Dendroctonus frontalis*); and the black turpentine beetle (*D. terebrans*).

The Nantucket pine tip moth (*Rhyacionia frustrana*) mainly attacks shortleaf and loblolly pines. Occasionally, it attacks slash pine, but it does not attack longleaf pine (*4*).

The most common diseases affecting loblolly, shortleaf, and slash pines are caused by gall rusts (*Cronartium fusiforme* and *C. cerebrum*). The only effective treatment is to remove infected trees when improvement cuttings are made.

A serious disease of longleaf pine is brown-spot needle blight (*Scirrhea acicola*). The disease causes repeated defoliation and kills or retards the growth of seedlings. Prescribed burning will help to control the disease.

In many hardwood species hardwood cankers cause serious deformation and decay.

Engineering Properties of the Soils

This soil survey report for Darlington County, S.C., contains information that can be used by engineers to—

1. Make soil and land use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Assist in designing drainage and irrigation systems, farm ponds, diversion terraces, and other structures for soil and water conservation.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway and airport locations and in planning detailed soil surveys of the selected locations.
4. Locate sand and gravel for use in structures.
5. Correlate performance of engineering structures with soil mapping units and thus develop information that will be useful in designing and maintaining the structures.
6. Determine the suitability of soil units for cross-country movements of vehicles and construction equipment.
7. Supplement information obtained from other published maps and reports and aerial photographs for the purpose of making maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

The mapping and descriptive reports are somewhat generalized and should be used only in planning more detailed field surveys. The more detailed field survey will, in turn, be used to determine the in-place condition of the soil at the site of the proposed engineering construction.

The engineering interpretations made in this section are based on data obtained by testing samples from five soil profiles in the Soils Laboratory, Bureau of Public Roads (see table 6). These samples were tested for moisture density, grain-size distribution, liquid limit, and

[3] KUNZ, A. E. ANNUAL REPORT OF FLORENCE DISTRICT TO STATE COMMISSION OF FORESTRY FOR FISCAL YEAR 1957–58. 49 pp. (Mimeographed.)

plasticity index. According to results of the tests, the soils were assigned ratings in the classification systems of the American Association of State Highway Officials (*1*) and the Unified (*11*). In the testing the percentage of clay was obtained by the hydrometer method and, therefore, it is not suitable as a basis for naming textural classes of soils.

Because samples from only five soil profiles were tested (see table 6), it was necessary to estimate the AASHO and Unified engineering classifications for the rest of the

TABLE 6.—*Engineering test data* [1] *for*

Soil name and location	Bureau of Public Roads report number	Depth	Horizon	Moisture-density [2]	
				Maximum dry density	Optimum moisture content
		Inches		*Lb. per cu. ft.*	*Percent*
Caroline sandy loam: 1 mile W. of Old Palmetto School	S33879	2½–13	A_2	121	8
	S33880	13–30	B_{21} and B_{22}	118	14
	S33881	38+	C	109	18
Coxville fine sandy loam: 8.5 miles W. of Lamar	S33882	0–6	A_p	122	11
	S33883	6–27	B_{g21}	115	15
	S33884	36+	C	114	15
Flint fine sandy loam: 2 miles NE. of Montclare	S33885	0–6	A_p	118	12
	S33886	12–42	B_{22}	94	27
	S33887	42–61+	C	103	21
Gilead sandy loam: 0.25 mile N. of Clyde Mill Pond	S33888	0–13	A_1 and A_2	119	9
	S33889	13–27	B_1 and B_{2m}	118	14
	S33890	27–54+	C	101	22
Vaucluse sandy loam: 3 miles SW. of Clyde School	S33891	0–5	A_1	92	24
	S33892	5–12	A_2	118	12
	S33893	12–25	B_{2m} and B_3	121	12
	S33894	25–60+	C	116	15

[1] Tests performed by the Bureau of Public Roads in accordance with standard procedures of the American Association of State Highway Officials (AASHO).

[2] Moisture-density according to AASHO Designation: T 99–57, Method A.

[3] Mechanical analyses according to AASHO Designation: T–88: Results by this procedure frequently differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in

TABLE 7.—*Brief description of the soils and*

[Dashes indicate information is

Map symbol	Soil name	Depth to seasonal high water table	Soil description	Depth from surface (typical profile)	USDA [1] texture
		Feet		*Inches*	
CaA CaB	Cahaba fine sandy loam, level phase. Cahaba fine sandy loam, gently sloping phase.	3+	1 to 1½ feet of well-drained sandy loam over 1 to 2 feet of fine sandy clay loam developed in beds of unconsolidated clay and sandy clay.	0–18 18–32	Fine sandy loam Fine sandy clay loam
CfD2	Caroline fine sandy loam, eroded strongly sloping phase.	5+	½ foot of well-drained fine sandy loam over 3 feet of fine sandy clay loam developed in unconsolidated beds of sandy clay.	0–6 6–38	Fine sandy loam Fine sandy clay loam
Ch	Chewacla silt loam.	0	1 foot of silt loam underlain by 1½ feet of silty clay formed in alluvium derived from granite, Carolina slate, and Coastal Plain materials.	0–8 8–24	Silt loam Silty clay
Cn Co	Congaree fine sandy loam. Congaree silt loam.	0	1 foot of silt or sandy loam over 1½ feet of silty clay developed in silty and clayey alluvium; contains flakes of mica.	0–8 8–27	Fine sandy loam and silt loam. Silty clay

See footnotes at end of table.

soils mapped and to estimate permeability, available moisture-holding capacity, degree of dispersion, and shrink-swell potential. These estimates are shown in table 7.

Table 8 describes the suitability of the soils for winter grading, for road subgrade, and for road fill; the suitability of each as a source of topsoil and sand and gravel; and the features of each that affect use for farm ponds, drainage, irrigation, terraces and diversions, and waterways.

soil samples taken from five soil profiles

Mechanical analyses [3]								Liquid limit	Plasticity index	Classification	
Percentage passing sieve—				Percentage smaller than—						AASHO [4]	Unified [5]
No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 60 (.025 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
100	83	70	28	21	14	6	4	(6)	(6)	A–2–4(0)	SM.
100	87	77	47	42	35	29	27	32	15	A–6(4)	SC.
100	93	87	49	43	37	34	33	50	27	A–7–6(9)	SC.
100	81	69	50	45	31	18	13	22	7	A–4(3)	SM–SC.
100	86	76	63	60	47	38	33	39	20	A–6(10)	CL.
100	87	79	67	64	50	37	32	38	20	A–6(10)	CL.
100	98	96	60	46	27	17	13	20	3	A–4(5)	ML.
------	------	100	79	72	62	55	53	65	29	A–7–5(20)	MH.
------	------	100	58	52	45	39	36	49	22	A–7–6(10)	ML–CL.
100	72	54	18	15	11	9	7	(6)	(6)	A–2–4(0)	SM.
100	72	59	37	36	32	28	25	37	16	A–6(2)	SC.
100	94	91	86	83	73	65	52	53	23	A–7–5(16)	MH–CH.
100	72	61	46	43	34	26	21	47	11	A–7–5(3)	SM.
100	64	49	34	32	28	24	22	30	10	A–2–4(0)	SC.
100	65	50	36	35	32	29	28	33	14	A–6(1)	SC.
93	78	70	46	41	34	27	22	36	12	A–6(3)	SC.

diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes of soils.

[4] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (pt. 1, ed. 7): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHO Designation: M 145–49.

[5] Based on the Unified Soil Classification System, Tech. Memo. No. 3–357, v. 1, Waterways Expt. Sta., Corps of Engineers, March 1953.

[6] Nonplastic.

estimated properties significant to engineering

not available or does not apply]

Classification		Percentage passing sieve—		Permeability	Structure	Available water	Reaction	Dispersion	Shrink-swell potential
Unified	AASHO	No. 200 (0.74 mm.)	No. 10 (2.0 mm.)						
				Inches per hour		*Inches per foot of depth*	*pH*		
SM	A–4	35–45	100	0. 80–2. 50	Crumb	1. 1	5. 6–6. 0	High	Low.
CL	A–6 or A–7	55–70	100	05–0. 20	Subangular blocky.	1. 4	5. 1–5. 5	Moderate	Low.
SM	A–4	35–45	100	. 05–0. 20	Crumb	. 9	5. 6–6. 0	High	Low.
SC	A–6	45–65	100	. 05–0. 20	Subangular blocky.	1. 0	5. 6–6. 0	Moderate	Low.
ML	A–4	90–100	100	. 80–2. 50	Crumb	1. 5	5. 6–6. 0	High	Moderate.
CL	A–7 or A–6	95–100	100	. 80–2. 50	Subangular blocky.	1. 5	5–6. 6. 0	Low	High.
ML	A–4	90–100	.100	2. 50–5. 00	Crumb	1. 5	6. 1–6. 5	High	Moderate to low.
CL	A–7 or A–6	95–100	100	2. 50–5. 00	Subangular blocky.	1. 5	5. 6–6. 0	Low	High.

TABLE 7.—*Brief description of the soils and estimated*

Map symbol	Soil name	Depth to seasonal high water table	Soil description	Depth from surface (typical profile)	USDA [1] texture
		Feet		*Inches*	
Cv Cx	Coxville fine sandy loam. Coxville sandy loam.	0	½ to 1 foot of poorly drained sandy loam over 2 feet of sandy clay derived from beds of unconsolidated sandy clay and clay.	0–12 12–36	Fine sandy loam to sandy loam. Sandy clay loam to sandy clay.
Df Ds	Dunbar fine sandy loam. Dunbar sandy loam.	1+	1 foot of somewhat poorly drained sandy loam over 2 feet of sandy clay derived from beds of unconsolidated sandy clay and clay.	0–12 12–33	Fine sandy loam to sandy loam. Sandy clay loam to sandy clay.
EmB EsB EsC	Eustis loamy sand, gently sloping phase. Eustis sand, gently sloping phase. Eustis sand, sloping phase.	5+	2½ to 10 feet of excessively drained sand derived from marine deposits of unconsolidated sand.	0–12 12–46	Loamy sand to sand.. Loamy sand to sand..
FfA FfC	Flint fine sandy loam, level phase. Flint fine sandy loam, sloping phase.	1	½ foot of moderately well drained sandy loam over 2 to 3 feet of clay derived from beds of unconsolidated sandy clay and silt, deposited by streams; in places has flakes of mica.	0–6 6–42	Fine sandy loam Clay
GaB	Gently sloping land, sandy and clayey sediments.[3]	4+	½ to 1 foot of well-drained sandy clay derived from beds of unconsolidated sand and clay; laminated.	0–6 6–12	Sandy loam Sand to clay
GdB GdC	Gilead loamy sand, gently sloping thick surface phase. Gilead loamy sand, sloping thick surface phase.	3+	1 to 2½ feet of moderately well drained loamy sand to sandy loam underlain by ½ to 1½ feet of slightly cemented sandy clay loam derived from beds of unconsolidated sandy clay.	0–30 30–38	Loamy sand Sandy loam
GeB GeC	Gilead sandy loam, gently sloping phase. Gilead sandy loam, sloping phase.	3+	Same	0–18 18–27	Sandy loam Sandy clay loam
Go	Goldsboro sandy loam	1	1 to 1½ feet of moderately well drained sandy loam, over 2 to 3 feet of sandy clay derived from beds of unconsolidated sandy clay.	6–10 10–36	Fine sandy loam to sandy loam. Sandy clay loam to sandy clay.
Gr	Grady sandy loam	0	½ to 1 foot of poorly drained loam or sandy loam over 1½ to 2 feet of sandy loam to sandy clay derived from beds of unconsolidated sand and clay.	0–6 6–32	Sandy loam Sandy loam to sandy clay.
HbB HcB HcC	Huckabee loamy sand, gently sloping phase. Huckabee sand, gently sloping phase. Huckabee sand, sloping phase.	5+	3 to 5 feet of excessively drained sand formed in beds of unconsolidated sand deposited by streams.	0–16 16–36	Sand to loamy sand. Loamy sand to sand.
InB	Independence loamy sand, gently sloping phase.	5+	Same	0–12 12–24	Loamy sand Sandy loam
Iz	Izagora fine sandy loam	1	1 to 1½ feet of somewhat poorly drained sandy loam over 1 to 2 feet of sandy clay loam derived from beds of unconsolidated sand and clay deposited by streams.	0–12 12–36	Fine sandy loam Sandy loam to sandy clay loam.
KaA KaB	Kalmia loamy sand, level thick surface phase. Kalmia loamy sand, gently sloping thick surface phase.	3+	1 to 2½ feet of well-drained sandy loam or loamy sand over 1 to 3 feet of sandy clay loam derived from beds of unconsolidated sand and clay deposited by streams.	0–30 30–38	Loamy sand Sandy loam
KsA KsB	Kalmia sandy loam, level phase. Kalmia sandy loam, gently sloping phase.	3+	Same	0–12 12–35	Sandy loam Sandy clay loam
Ky	Klej loamy sand	1	3 feet of somewhat poorly drained loamy sand formed in beds of unconsolidated sand.	0–26 26–38	Loamy sand Loamy sand to sandy loam.

See footnotes at end of table.

properties significant to engineering—Continued

Classification		Percentage passing sieve—		Permeability	Structure	Available water	Reaction	Dispersion	Shrink-swell potential
Unified	AASHO	No. 200 (0.74 mm.)	No. 10 (2.0 mm.)						
				Inches per hour		*Inches per foot of depth*	*pH*		
SM	A-4	45–55	100	0.05–0.20	Crumb	1.6	5.1–5.5	High	Low.
CL	A-6	55–65	100	05–0.20	Subangular blocky.	1.4	5.1–5.5	Moderate to low.	Low to moderate.
SM	A-4	35–45	100	.20–0.80	Crumb	1.2	5.6–6.0	High	Low.
SC or CL	A-6 or A-7	55–65	100	.05–0.20	Subangular blocky.	1.2	5.1–5.5	Moderate to low.	Low to moderate.
SM or SP	A-2 or A-3	5–10	100	(2)	Crumb	.7	5.1–5.5	High	Low.
SM or SP	A-2 or A-3	5–10	100	(2)	Crumb	.7	5.6–6.0	High	Low.
ML	A-4	55–65	100	.05–0.20	Crumb	1.1	6.1–6.5	High	Low.
MH	A-7	80–90	100	.05–0.20	Subangular blocky.	1.2	5.1–5.5	Low	High.
SM	A-4	35–45	100	.05–0.20	Crumb	(4)	5.6–6.0	High	Low.
(4)	(4)	(4)	(4)	(4)	Subangular blocky.	(4)	5.1–5.5	(4)	(4).
SM	A-2	10–30	100	(2)	Crumb	.7	5.6–6.0	High	Low.
SM	A-4	35–45	100	.05–0.20	Subangular blocky.	.8	5.6–6.0	High	Low.
SM	A-2 or A-4	15–25	100	.80–2.50	Crumb	1.1	5.6–6.0	High	Low.
SC	A-6	35–45	100	.05–0.20	Subangular blocky.	1.1	5.6–6.0	Moderate	Low.
SM	A-4	35–45	100	.20–0.80	Crumb	1.2	5.6–6.0	High	Low.
SC or CL	A-6 or A-7	55–65	100	.05–0.20	Subangular and angular blocky.	1.2	5.1–5.5	Moderate to low.	Low to moderate.
SM	A-4	35–45	100	.05–0.20	Crumb	1.6	5.1–5.5	High	Low.
SM or CL	A-4 to A-7	35–65	100	.05–0.20	Subangular blocky.	1.4	5.6–6.0	High to low	Low to moderate.
SM or SP	A-2 or A-3	5–10	100	(2)	Crumb	.7	5.6–6.0	High	Low.
SM or SP	A-2 or A-3	5–10	100	2.50–5.00	Crumb	.7	5.1–5.5	High	Low.
SM	A-2	10–30	100	(2)	Crumb	.7	5.6–6.0	High	Low.
SM	A-4	35–45	100	2.50–5.00	Crumb	.7	5.1–5.5	High	Low.
SM	A-4	35–45	100	.20–0.80	Crumb	1.0	5.6–6.0	High	Low.
SM or CL	A-4	45–65	100	.05–0.20	Subangular blocky.	1.4	5.1–5.5	High to moderate.	Low to moderate.
SM	A-2	10–30	100	2.50–5.00	Crumb	.8	6.1–6.5	High	Low.
SM	A-4	35–45	100	2.50–5.00	Subangular blocky.	.8	5.6–6.0	High	Low.
SM	A-4	35–45	100	.80–2.50	Crumb	1.0	6.1–6.5	High	Low.
CL	A-4 or A-6	55–65	100	.05–0.20	Subangular blocky.	1.3	5.6–6.0	Moderate	Low.
SM	A-2	10–30	100	.80–2.50	Crumb	1.0	5.6–6.0	High	Low.
SM	A-2 to A-4	10–45	100	.80–2.50	Subangular blocky.	1.0	5.1–5.5	High	Low.

TABLE 7.—*Brief description of the soils and estimated*

Map symbol	Soil name	Depth to seasonal high water table	Soil description	Depth from surface (typical profile)	USDA [1] texture
		Feet		*Inches*	
LaB	Lakeland sand, gently sloping phase.	5+	3 to 15 feet of excessively drained sand formed in beds of unconsolidated sand.	0–8 8–54	Sand Sand to loamy sand
LaC	Lakeland sand, sloping phase.				
LaD	Lakeland sand, strongly sloping phase.				
LkA	Lakeland sand, level shallow phase.				
LkB	Lakeland sand, gently sloping shallow phase.				
LkC	Lakeland sand, sloping shallow phase.				
LwB	Lakewood sand, gently sloping phase.	5+	3 to 8 feet of excessively drained white sand formed in beds of unconsolidated sand.	0–16 16–36	Sand Sand
Ls	Leaf fine sandy loam	0	½ to 1 foot of poorly drained sandy loam over 2 to 2½ feet of sandy clay derived from beds of unconsolidated sandy clay.	0–6 6–30	Fine sandy loam Fine sandy clay
Ly	Lynchburg sandy loam	1	1 to 1½ feet of somewhat poorly drained sandy loam over 2 to 2½ feet of sandy clay loam derived from beds of unconsolidated sand and clay.	0–12 12–34	Sandy loam Sandy loam to sandy clay loam.
MaA	Marlboro sandy loam, level phase.	3	1 foot of well-drained sandy loam over 1½ to 2½ feet of sandy clay developed from beds of unconsolidated sandy clay.	0–9 9–27	Sandy loam Sandy clay loam to sandy clay.
MaB	Marlboro sandy loam, gently sloping phase.				
Mx	Mixed alluvial land	0	3 to 10 feet of very poorly drained stratified sand and clay deposited by streams.	0–12 12–36	(4) (4)
My	Myatt sandy loam	1	1 to 1½ feet of poorly drained sandy loam over 2 feet of sandy clay loam derived from beds of sand and clay deposited by streams.	0–8 8–32	Sandy loam Sandy loam to sandy clay loam.
NfA	Norfolk fine sandy loam, level phase.	3	1 to 2½ feet of well-drained sandy loam underlain by 1 to 3 feet of sandy clay loam derived from beds of unconsolidated sand and clay.	0–13 13–44	Fine sandy loam Sandy clay loam
NfB	Norfolk fine sandy loam, gently sloping phase.				
NoA	Norfolk loamy sand, level thick surface phase.	3	Same	0–30 30–42	Loamy sand Sandy loam
NoB	Norfolk loamy sand, gently sloping thick surface phase.				
NoC	Norfolk loamy sand, sloping thick surface phase.				
NoD	Norfolk loamy sand, strongly sloping thick surface phase.				
NsA	Norfolk sandy loam, level phase.	3	Same	0–13 13–44	Sandy loam Sandy clay loam
NsB	Norfolk sandy loam, gently sloping phase.				
NsC	Norfolk sandy loam, sloping phase.				
NtA	Norfolk sandy loam, level thin solum phase.				
NtB	Norfolk sandy loam, gently sloping thin solum phase.				
Ok	Okenee loam	0	1 to 1½ feet of very poorly drained organic loam over 1 to 2 feet of sand to sandy clay loam derived from beds of unconsolidated sand and clay deposited by streams.	0–13 13–42	Loam Sandy loam to sandy clay loam.
Pm	Plummer loamy sand	0	1 foot of very poorly drained loamy sand over 2 to 3 feet of sandy loam derived from beds of unconsolidated sand.	0–11 11–32	Loamy sand Loamy sand

See footnotes at end of table.

properties significant to engineering—Continued

Classification: Unified	Classification: AASHO	Percentage passing sieve— No. 200 (0.74 mm.)	Percentage passing sieve— No. 10 (2.0 mm.)	Permeability	Structure	Available water	Reaction	Dispersion	Shrink-swell potential
				Inches per hour		*Inches per foot of depth*	*pH*		
SP	A-3	5-10	100	(2)	Crumb	0.7	5.1-5.5	High	Low.
SP or SM	A-2, A-3 or A-4.	5-45	100	2.50-5.00	Structureless	.7	5.6-6.0	High	Low.
SP	A-3	5-10	100	(2)	Crumb	.6	5.1-5.5	High	Low.
SP	A-3	5-10	100	(2)	Structureless	.6	5.1-5.5	High	Low.
SM	A-4	45-55	100	.05-0.20	Crumb	1.6	5.6-6.0	High	Low.
CL	A-6 or A-7	55-65	100	(5)	Subangular blocky.	1.4	5.1-5.5	Low	Moderate.
SM	A-4	35-45	100	.80-2.50	Crumb	1.2	5.6-6.0	High	Low.
SM or CL	A-4 or A-6	35-65	100	.20-0.80	Subangular blocky.	1.2	5.1-5.5	High to moderate.	Low to moderate.
SM	A-4	35-45	100	.20-0.80	Crumb	1.2	6.1-6.5	High	Low.
CL	A-6 or A-7	55-65	100	.05-0.20	Subangular blocky.	1.2	5.6-6.0	Low	Moderate.
(4)	(4)	(4)	(4)	(4)	(4)	(4)	5.1-5.5	(4)	(4).
(4)	(4)	(4)	(4)	(4)	(4)	(4)	5.1-5.5	(4)	(4).
SM	A-4	35-45	100	.80-2.50	Crumb	.8	5.1-5.5	High	Low.
SM to CL	A-4 or A-6	10-65	100	.20-0.80	Subangular blocky.	.7	5.1-5.5	High to moderate.	Low to moderate.
SM	A-4	35-45	100	.80-2.50	Crumb	1.0	5.6-6.0	High	Low.
CL	A-4 or A-6	55-65	100	.05-0.20	Subangular blocky.	1.3	5.6-6.0	Moderate	Low.
SM	A-2	10-30	100	2.50-5.00	Crumb	.8	5.6-6.0	High	Low.
SM	A-4	35-45	100	2.50-5.00	Subangular blocky.	.8	5.6-6.0	High	Low.
SM	A-4	35-45	100	.80-2.50	Crumb	1.0	5.6-6.0	High	Low.
CL	A-4 or A-6	55-65	100	.05-0.20	Subangular blocky.	1.3	5.6-6.0	Moderate	Low.
PT		35-75	100	.80-2.50	Crumb	1.5	5.1-5.5	Moderate	Moderate.
SM or CL	A-2 or A-4	5-65	100	.20-0.80	Subangular blocky.	1.7	5.1-5.5	High to moderate.	Low.
SM	A-2 or A-4	10-45	100	.80-2.50	Crumb	.8	5.1-5.5	High	Low.
SM	A-2 or A-4	35-45	100	.20-0.80	Subangular blocky.	.7	5.1-5.5	High	Low.

TABLE 7.—*Brief description of the soils and estimated*

Map symbol	Soil name	Depth to seasonal high water table	Soil description	Depth from surface (typical profile)	USDA [1] texture
		Feet		*Inches*	
Po Ps	Portsmouth mucky loam. Portsmouth sandy loam.	0	1 to 1½ feet of very poorly drained organic loam or sandy loam over 1½ to 2½ feet of sandy clay derived from beds of unconsolidated sandy clay.	0–12 12–29	Mucky loam to sandy loam. Sandy clay to sandy clay loam.
Ra	Rains sandy loam	0	1 foot of poorly drained sandy loam over 2 to 2½ feet of sandy clay loam derived from beds of unconsolidated sand and clay.	0–9 9–27	Sandy loam Sandy loam to sandy clay loam.
RfA RfB	Ruston fine sandy loam, level phase. Ruston fine sandy loam, gently sloping phase.	3	1 to 2½ feet of well-drained sandy loam underlain by 1 to 3 feet of sandy clay loam derived from beds of unconsolidated sand and clay.	0–12 12–36	Fine sandy loam Sandy clay loam
RsA RsB RsC2	Ruston sandy loam, level phase. Ruston sandy loam, gently sloping phase. Ruston sandy loam, eroded sloping phase.	3	Same	0–11 11–50	Sandy loam Sandy clay loam
RtA RtB RtC	Ruston loamy sand, level thick surface phase. Ruston loamy sand, gently sloping thick surface phase. Ruston loamy sand, sloping thick surface phase.	3	Same	0–30 30–38	Loamy sand Sandy loam
Ru Ry	Rutlege loamy sand. Rutlege mucky loam.	0	1 to 1½ feet of very poorly drained organic loam or loamy sand over 1 to 2 feet of sand derived from beds of unconsolidated sand.	0–12 12–26	Loam to loamy sand Sand to loamy sand
ScC ScC2	Sloping land, sandy and clayey sediments.[3] Sloping land, sandy and clayey sediments, eroded phase.[3]	10+	½ to 1 foot of well-drained sandy clay derived from beds of unconsolidated sand and clay; laminated.	0–6 6–12	Sandy loam Sand to clay
Sw	Swamp	0	3 to 10 feet of very poorly drained stratified sand and clay deposited by streams.	0–12 12–36	(4) (4)
VaB VaC	Vaucluse loamy sand, gently sloping thick surface phase. Vaucluse loamy sand, sloping thick surface phase.	5+	½ to 2½ feet of well-drained sandy loam underlain by ½ to 2 feet of slightly cemented, compact sandy clay loam derived from beds of unconsolidated sand and clay.	0–30 30–36	Loamy sand Sandy loam to loamy sand.
VsB VsC VsC2 VsD VsD2 VsE	Vaucluse sandy loam, gently sloping phase. Vaucluse sandy loam, sloping phase. Vaucluse sandy loam, eroded sloping phase. Vaucluse sandy loam, strongly sloping phase. Vaucluse sandy loam, eroded strongly sloping phase. Vaucluse sandy loam, moderately steep phase.	5+	Same	0–12 12–25	Sandy loam Sandy clay loam
Wa Wf	Wahee sandy loam. Wahee very fine sandy loam.	1	½ to 1 foot of moderately well drained to somewhat poorly drained sandy loam over 2 feet of clay loam derived from beds of unconsolidated sandy clay deposited by streams.	0–6 6–28	Sandy loam to very fine sandy loam. Silty clay loam
Wh	Wehadkee silt loam	0	½ foot of very poorly drained silt loam over ½ to 1½ feet of silty clay derived from beds of unconsolidated silty clay deposited by streams.	0–5 5–15	Silt loam Silty clay

[1] United States Department of Agriculture classification of soil texture. [2] More than 10.0 inches per hour. [3] Described in section, Soil

properties significant to engineering—Continued

Classification		Percentage passing sieve—		Permeability	Structure	Available water	Reaction	Dispersion	Shrink-swell potential
Unified	AASHO	No. 200 (0.74 mm.)	No. 10 (2.0 mm.)						
				Inches per hour		*Inches per foot of depth*	*pH*		
Pt		35–75	100	0. 80–2. 50	Crumb	2. 0	5. 1–5. 5	Moderate	Moderate.
CL	A–4 or A–6	55–65	100	. 20–0. 80	Subangular blocky.	1. 2	5. 1–5. 5	Low to moderate.	Moderate to low.
SM	A–4	35–45	100	. 80–2. 50	Crumb	. 8	5. 6–6. 0	High	Low.
SM or CL	A–4 or A–6	35–65	100	. 20–0. 80	Crumb	. 7	5. 1–5. 5	High to moderate.	Low.
SM	A–4	35–45	100	. 80–2. 50	Crumb	1. 0	6. 1–6. 5	High	Low.
CL	A–4 or A–6	55–65	100	. 05–0. 20	Subangular blocky.	1. 3	5. 6–6. 0	Moderate	Low.
SM	A–4	35–45	100	. 80–2. 50	Crumb	1. 0	6. 1–6. 5	High	Low.
CL	A–4 or A–6	55–65	100	. 05–0. 20	Subangular blocky.	1. 3	5. 6–6. 0	Moderate	Low.
SM	A–2	10–30	100	2. 50–5. 00	Crumb	. 8	5. 6–6. 0	High	Low.
SM	A–4	35–45	100	2. 50–5. 00	Subangular blocky.	. 8	5. 6–6. 0	High	Low.
Pt		35–75	100	80–2. 50	Crumb	1. 5	5. 1–5. 5	Moderate	Moderate.
SM or SP	A–2 or A–3	5–30	100	2. 50–5. 00	Crumb	1. 7	5. 1–5. 5	High	Low.
SM	A–4	35–45	100		Crumb	([4])	5. 6–6. 0	High	Low.
([4])	([4])	([4])	([4])		Subangular blocky.	([4])	5. 1–5. 5	([4])	([4]).
([4])	([4])	([4])	([4])	([4])			5. 1–5. 5	([4])	([4]).
([4])	([4])	([4])	([4])	([4])			5. 1–5. 5	([4])	([4]).
SM	A–2	10–30	100	([2])	Structureless	1. 1	5. 6–6. 0	High	Low.
SM	A–2 or A–4	10–45	100	. 05–0. 20	Subangular blocky.	1. 0	5. 1–5. 5	High	Low.
SM or SC	A–4 to A–7	35–45	100	. 80–2. 50	Crumb	1. 1	5. 6–6. 0	High	Low.
SC	A–6	35–45	100	. 05–0. 20	Subangular blocky.	1. 1	5. 1–5. 5	Moderate	Low.
ML	A–4	55–65	100	. 20–0. 80	Crumb	2. 0	4. 5–5. 0	High	Low.
MH or CL	A–7 or A–5	80–90	100	. 05–0. 20	Subangular and angular blocky.	1. 2	5. 1–5. 5	Moderate	Moderate.
ML	A–4	90–100	100	. 20–0. 80	Crumb	1. 5	5. 1–5. 5	Moderate	Moderate.
CL	A–7 or A–6	95–100	100	. 05–0. 20	Subangular blocky.	1. 5	5. 6–6. 0	Low	High.

Series and Mapping Units, under Gently sloping and sloping land, sandy and clayey sediments. [4] Variable. [5] Less than 0.05 inch per hour.

TABLE 8.—*Estimated soil properties*

[Dashes indicate information does not apply

Soil series [1] and map symbols	Suitability for—			Suitability as source of—	
	Winter grading	Road subgrade	Road fill	Topsoil	Sand and gravel
Cahaba (CaA; CaB)	Fair	Good	Good	Surface layer is fair.	Unsuitable
Caroline (Cf; D2)	Poor	Poor	Poor	Surface layer is fair.	Unsuitable
Chewacla (Ch)	Poor	Poor	Poor	Fair	Unsuitable
Congaree (Cn; Co)	Poor	Poor	Poor	Fair	Unsuitable
Coxville (Cv; Cx)	Poor; has a high water table.	Fair	Fair	Poor	Unsuitable
Dunbar (Df; Ds)	Fair	Fair	Fair	Fair	Unsuitable
Eustis (EmB; EsB; EsC)	Good	Poor	Fair; gentle slopes.	Unsuitable	Poorly graded fine sands.
Flint (FfA; FfC)	Poor	Poor	Poor	Poor	Unsuitable
Gently sloping land, sandy and clayey sediments (GaB).[2]	Variable	Variable	Variable	Variable	Variable
Gilead (GdB; GdC; GeB; GeC)	Good	Fair to good	Fair to good; has gentle slopes.	Fair	Poorly graded fine sands.
Goldsboro (Go)	Poor	Fair to good	Fair to good	Fair	Unsuitable
Grady (Gr)	Poor	Fair	Fair	Poor	Unsuitable
Gullied land (Gu).					
Huckabee (HbB; HcB; HcC)	Good	Poor	Fair; has gentle slopes.	Unsuitable	Poorly graded fine sands.
Independence (InB)	Good	Fair	Fair	Poor	Poorly graded fine sands.
Izagora (Iz)	Fair	Fair	Fair	Poor	Unsuitable
Kalmia (KaA; KaB; KsA; KsB)	Good	Fair to good	Fair to good	Good	Poorly graded fine sands.
Klej (Ky)	Good	Poor to fair	Poor to fair	Poor	Poorly graded fine sands.
Lakeland (LaB; LaC; LaD; LkA; LkB; LkC)	Good	Poor	Fair; has gentle slopes.	Poor	Poorly graded fine sands.
Local alluvial land (Lo).					
Leaf (Ls)	Poor	Fair	Fair	Poor	Unsuitable

See footnotes at end of table.

that affect engineering

or is not available]

Features affecting soil for conservation work with—					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Slow seepage	Adequate strength and stability; moderate permeability.	Moderate permeability; frequently occurs in low depressions; has subsoil of slow permeability.	Moderate rate of infiltration; low water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Slow seepage	Low strength and stability; slow permeability.	----------	Slow rate of infiltration; moderate water-holding capacity.	Highly erodible	Highly erodible.
Moderate seepage.	Low strength and stability; moderate permeability.	Seasonal high water table; moderate permeability.	Slow rate of infiltration; high water-holding capacity.		
Moderate seepage.	Low strength and stability; moderate permeability.	----------	High water-holding capacity; moderate intake rate.		
Slow seepage	Moderate strength and stability; slow permeability.	Seasonal high water table; slow permeability.	Moderate water-holding capacity; low to moderate intake rate.		
Slow seepage	Moderate strength and stability; moderately slow to slow permeability.	Seasonal high water table; moderately slow to slow permeability.	Moderate water-holding capacity; moderate intake rate.		
Excessive seepage.	Low strength and stability; rapid permeability.	----------	Low water-holding capacity; rapid intake rate.		
Slow seepage	Moderate strength and stability; slow permeability.	Slow permeability	Moderate water-holding capacity; low intake rate.	Erodible where sloping.	Erodible where sloping.
Variable	Variable	Variable	Variable	Variable	Variable.
Slow seepage in subsoil.	Moderate to high strength and stability; slow permeability in subsoil.	Hillside seepage; seasonal high water table occurs along natural drains.	Low to moderate water-holding capacity; moderate intake rate.	Highly erodible	Highly erodible.
Slow seepage	Moderate to high strength and stability; slow permeability in subsoil.	Moderate to slow permeability.	Moderate water-holding capacity; moderate intake rate.		
Slow seepage	Moderate strength and stability; slow permeability.	Seasonal high water table; slow permeability.	Moderate water-holding capacity; low to moderate intake rate.		
Excessive to moderate seepage.	Low strength and stability; very rapid permeability.	----------	Low water-holding capacity; rapid intake rate.		
Excessive seepage.	Low to moderate strength and stability; rapid permeability.	----------	Low water-holding capacity; rapid intake rate.		
Slow seepage	Moderate strength and stability; moderately slow permeability.	Moderately slow permeability.	Moderate water-holding capacity; low intake rate.	Erodible where sloping.	Erodible where sloping.
Moderate to slow seepage.	Moderate to high strength and stability; moderate permeability.	----------	Moderate water-holding capacity and intake rate.	Erodible where sloping.	Erodible where sloping.
Excessive seepage.	Low to moderate strength and stability; moderate permeability.	Seasonal high water table; moderately permeable.	Low water-holding capacity; high intake rate.		
Excessive seepage.	Low to moderate strength and stability; rapid permeability.	----------	Low water-holding capacity; high intake rate.		
Slow seepage	Moderate strength and stability; slow permeability.	Slow permeability	Moderate water-holding capacity; low intake rate.		

TABLE 8.—*Estimated soil properties*

[Dashes indicate information does not

Soil series [1] and map symbols	Suitability for—			Suitability as source of—	
	Winter grading	Road subgrade	Road fill	Topsoil	Sand and gravel
Lakewood (LwB)	Good	Poor	Poor	Poor	Suitable for sand.
Lynchburg (Ly)	Poor	Fair	Fair	Fair	Unsuitable
Marlboro (MaA; MaB)	Good	Fair to good	Fair to good	Good	Unsuitable
Marsh (Mr).					
Mixed alluvial land (Mx)	Variable	Variable	Variable	Variable	Variable
Myatt (My)	Poor	Poor	Poor	Poor	Unsuitable
Norfolk (NfA; NfB; NoA; NoB; NoC; NoD; NsA; NsB; NsC; NtA; NtB).	Good	Fair to good	Fair to good	Good	Poorly graded sands.
Okenee (Ok)	Poor	Organic material; unsuitable.	Fair	Poor	Unsuitable
Pits and dumps (Pd).					
Plummer (Pm)	Poor	Poor	Poor	Poor	Poorly graded fine sands.
Portsmouth (Po; Ps)	Poor	Organic material; unsuitable.	Poor	Poor	Unsuitable
Rains (Ra)	Poor	Fair	Fair	Fair	Unsuitable
Ruston (RfA; RfB; RsA; RsB; RsC2; RtA; RtB; RtC).	Good	Fair to good	Fair to good	Fair to good	Poorly graded sands.
Rutlege (Ru; Ry)	Poor	Poor	Poor	Poor	Poorly graded fine sands.
Sloping land, sandy and clayey sediments (ScC; ScC2).[2]	Variable	Variable	Variable	Variable	Variable
Swamp (Sw)	Variable	Variable	Variable	Variable	Variable
Vaucluse (VaB; VaC; VsB; VsC; VsC2; VsD; VsD2; VsE).	Good	Fair to good	Fair to good	Fair	Poorly graded sands.
Wahee (Wa; Wf)	Poor	Poor	Poor	Poor	Unsuitable
Wehadkee (Wh)	Poor	Poor	Poor	Fair	Unsuitable

[1] Consists of soil types and miscellaneous land types mapped in the county; when a mapping unit is made up of two or more soils, the characteristics of both should be considered.

that affect engineering—Continued

apply or is not available]

Features affecting soil for conservation work with—					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Excessive seepage.	Low strength and stability; very rapid permeability.				
Slow to moderate seepage.	Moderate strength and stability; permeability is moderate.	Seasonal high water table; moderate permeability.	Moderate water-holding capacity and intake rate.		
Slow seepage in subsoil.	Moderate to high strength and stability; slow permeability in subsoil.	----------	Moderate water-holding capacity and intake rate.	Erodible where sloping.	Erodible where sloping.
Variable	Variable	Variable	Variable	Variable	Variable.
Slow to moderate seepage in subsoil.	Low to moderate strength and stability; slow permeability in subsoil.	High water table; slow permeability.	Low water-holding capacity; moderate to slow rate of intake.		
Slow to moderate seepage.	Moderate to high strength and stability; moderate permeability.	----------	Moderate water-holding capacity and intake rate.	Erodible where sloping.	Erodible where sloping.
Slow seepage in subsoil.	Organic material; unsuitable.	High water table; slow to moderate permeability in subsoil.	Moderate water-holding capacity; moderate intake rate.		
Slow to moderate seepage in subsoil.	Low strength and stability.	High water table; rapid permeability; poor agricultural soil.	Poor agricultural soil.		
Slow to moderate permeability in subsoil.	Organic material; unsuitable.	High water table; slow to moderate permeability in subsoil.	High water-holding capacity; moderate infiltration rate.		
Slow to moderate seepage.	Moderate strength and stability; slow to moderate permeability.	Seasonal high water table; slow to moderate permeability.	Low water-holding capacity and moderate intake rate.		
Slow to moderate seepage.	Moderate to high strength and stability; moderate permeability.	----------	Moderate water-holding capacity and intake rate.	Erodible where sloping.	Erodible where sloping.
High seepage in subsoil.	Low strength and stability; rapid permeability.	High water table; rapid permeability; sand below depth of 12 inches.	Moderate water-holding capacity and intake rate.		
Variable	Variable	Variable	Variable	Variable	Variable.
Variable	Variable	Variable	Variable	Variable	Variable.
Slow to high seepage.	Moderate to high strength and stability; moderate to slow permeability.	Hillside seepage; seasonal high water table where soil occurs along breaks of streams.	Low water-holding capacity and moderate intake rate.	Erodible	Erodible.
Slow seepage	Low strength and stability; slow permeability.	Slow permeability	Moderate water-holding capacity; slow intake rate.	Erodible where sloping.	Erodible where sloping.
Slow seepage	Low strength and stability; slow permeability.	Slow permeability	High water-holding capacity; slow intake rate.		

[2] Described in the section, Soil Series and Mapping Units, under Gently sloping and sloping land, sandy and clayey sediments.

Classification Systems and Definitions of Terms

Because the classification systems and definitions of terms used in this section may not be familiar to farmers and others interested in construction, definitions are given in the paragraphs that follow. Engineers may want to refer to the glossary for definitions used in soil surveying.

Classification systems

AASHO classification system.—The American Association of State Highway Officials has developed a classification based on the field performance of soils. In this classification soils are placed in seven groups, designated A–1, A–2, A–3, A–4, A–5, A–6, and A–7. Some of the groups are divided into subgroups. The soils in each group are valued by means of a group index, a number that takes into account the behavior of soil and soil materials in embankments, subgrades, and subbases. The essentials of the classification are shown in table 7, which also describes, for each class, the nature and the stability of the material. Most highway engineers classify soil in accordance with this system.

Unified soil classification system.—A soil classification system in which the soil materials are identified as coarse grained (8 classes), fine grained (6 classes), or highly organic. The principal characteristics of these classes of soil are given in table 7. The classification of the tested soils according to the Unified system is given in the last column of table 6.

Definitions of terms

Available water.—The available water in inches per foot of soil depth is an approximation of the capillary water in the soil when wet to field capacity. When the soil is air dry, this amount of water will wet the soil material described to a depth of 1 foot without deeper percolation.

Dispersion.—The degree and rapidity with which soil structure breaks down or slakes in water. High dispersion means that the soil slakes readily.

Intake rate.—The rate, generally expressed in inches per hour, at which rain or irrigation water enters the soil. This rate is controlled partly by surface conditions (infiltration rate) and partly by subsurface conditions (permeability). It also varies with the method of applying water. The same kind of soil has different intake rates under sprinkler irrigation, border irrigation, and furrow irrigation.

Liquid limit.—The moisture content at which the soil material passes from a plastic to a liquid state.

Maximum dry density.—The highest dry density obtained in the compaction test.

Mechanical analyses.—The particles of various sizes in soil affect the behavior of the material when used for engineering purposes. Table 6 gives the percentages of gravel, sand, silt, and clay in samples from five soil profiles. The analyses were made by sieve and hydrometer methods. The names used by engineers for the various sizes of particles of sand, silt, and clay are not the same as those used by soil scientists. For example, *fine sand*, in engineering terminology, consists of particles 0.42 to 0.074 millimeter in diameter, whereas, *fine sand*, as defined by the soil scientists, consists of particles 0.25 to 0.10 millimeter in diameter. The mechanical analyses used in table 6 are not suitable for use in naming textural classes of soils.

Moisture density.—If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material will increase until the optimum moisture content is reached. After that, the density decreases with increase in moisture content. The highest dry density obtained in the compaction test is termed "maximum dry density." Data showing moisture density are important in earthwork, for, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

Plastic limit.—The moisture content at which the soil material passes from a solid to a plastic state.

Plasticity index.—The numerical difference between the liquid limit and the plastic limit. The plasticity index indicates the range of moisture content within which a soil material is plastic.

Road subgrade.—Refers to soil material at the surface or just below the finished grade on which the base soil material for pavement is placed.

Shrink-swell potential.—Indicates the volume change to be expected of the soil material with changes in moisture content.

Soil Series and Mapping Units

In this section the soil series of Darlington County are described in alphabetical order. Following the general description of each series is a profile description of one of the mapping units in that series. Each of the other mapping units of the series is compared with that soil for which a profile is described, and additional facts about each are given. Further information on the use and management of each soil is given in the section, Management of the Soils. Terms used to describe the soils are defined in the glossary.

A list of the soils mapped is given at the back of this report, along with the capability unit and woodland group of each. The approximate acreage and the proportionate extent of the soils are given in table 9. Their location and distribution are shown on the soil map at the back of this report.

TABLE 9.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent	Soil	Acres	Percent
Cahaba fine sandy loam:			Leaf fine sandy loam	3, 846	1. 1
Level phase	1, 360	0. 4	Local alluvial land	2, 305	. 7
Gently sloping phase	418	1	Lynchburg sandy loam	2, 320	. 7
Caroline fine sandy loam, eroded strongly sloping phase	303	1	Marlboro sandy loam:		
Chewacla silt loam	5, 524	1. 6	Level phase	4, 138	1. 2
Congaree fine sandy loam	588	. 2	Gently sloping phase	379	. 1
Congaree silt loam	297	. 1	Marsh	23	(1)
Coxville sandy loam	54, 758	15. 7	Mixed alluvial land	9, 859	2. 8
Coxville fine sandy loam	6, 312	1. 8	Myatt sandy loam	4, 441	1. 3
Dunbar sandy loam	16, 582	4. 8	Norfolk sandy loam:		
Dunbar fine sandy loam	657	. 2	Level phase	46, 479	13. 3
Eustis sand:			Gently sloping phase	7, 369	2. 1
Gently sloping phase	2, 156	. 6	Sloping phase	294	. 1
Sloping phase	787	. 2	Level thin solum phase	1, 264	. 4
Eustis loamy sand, gently sloping phase	3, 498	1. 0	Gently sloping thin solum phase	1, 898	. 5
Flint fine sandy loam:			Norfolk fine sandy loam:		
Level phase	1, 894	. 5	Level phase	681	. 2
Sloping phase	155	(1)	Gently sloping phase	562	. 2
Gently sloping and sloping land, sandy and clayey sediments:			Norfolk loamy sand:		
Gently sloping land, sandy and clayey sediments	239	. 1	Level thick surface phase	12, 219	3. 5
Sloping land, sandy and clayey sediments	302	. 1	Gently sloping thick surface phase	11, 342	3. 3
Sloping land, sandy and clayey sediments, eroded phase	478	. 1	Sloping thick surface phase	754	. 2
Gilead sandy loam:			Strongly sloping thick surface phase	193	. 1
Gently sloping phase	877	. 3	Okenee loam	3, 923	1. 1
Sloping phase	541	. 1	Pits and dumps	142	(1)
Gilead loamy sand:			Plummer loamy sand	2, 710	. 8
Gently sloping thick surface phase	840	. 2	Portsmouth mucky loam	675	. 2
Sloping thick surface phase	438	. 1	Portsmouth sandy loam	344	. 1
Goldsboro sandy loam	3, 881	1. 1	Rains sandy loam	1, 832	. 5
Grady sandy loam	496	. 1	Ruston sandy loam:		
Gullied land	128	(1)	Level phase	574	. 2
Huckabee sand:			Gently sloping phase	1, 703	. 5
Gently sloping phase	3, 646	1. 0	Eroded sloping phase	489	. 1
Sloping phase	439	. 1	Ruston fine sandy loam:		
Huckabee loamy sand, gently sloping phase	716	. 2	Level phase	551	. 2
Independence loamy sand, gently sloping phase	539	. 2	Gently sloping phase	1, 304	. 4
Izagora fine sandy loam	717	. 2	Ruston loamy sand:		
Kalmia sandy loam:			Level thick surface phase	589	. 2
Level phase	974	. 3	Gently sloping thick surface phase	2, 483	. 7
Gently sloping phase	274	. 1	Sloping thick surface phase	460	. 1
Kalmia loamy sand:			Rutlege loamy sand	2, 949	. 8
Level thick surface phase	805	. 2	Rutlege mucky loam	3, 181	. 9
Gently sloping thick surface phase	338	. 1	Swamp	11, 365	3. 3
Klej loamy sand	274	. 1	Vaucluse sandy loam:		
Lakeland sand:			Gently sloping phase	2, 714	. 8
Gently sloping phase	34, 622	9. 9	Sloping phase	4, 210	1. 2
Sloping phase	7, 896	2. 3	Strongly sloping phase	1, 958	. 6
Strongly sloping phase	1, 916	. 5	Moderately steep phase	577	. 2
Level shallow phase	5, 568	1. 6	Eroded sloping phase	1, 933	. 6
Sloping shallow phase	929	. 3	Eroded strongly sloping phase	718	. 2
Gently sloping shallow phase	6, 361	1. 8	Vaucluse loamy sand:		
Lakewood sand, gently sloping phase	178	. 1	Gently sloping thick surface phase	1, 397	. 4
			Sloping thick surface phase	992	. 3
			Wahee very fine sandy loam	1, 221	. 3
			Wahee sandy loam	850	. 2
			Wehadkee silt loam	16, 889	4. 8
			Total	348, 800	100. 0

[1] Less than 0.1 percent.

Cahaba Series

The soils of the Cahaba series are level to gently sloping and are well drained. They are deep soils that have formed from materials washed from the Coastal Plain and the Piedmont. The areas are small. They are on second terraces that run parallel to streams, but they are mostly along the Pee Dee River. The original vegetation consisted mainly of longleaf and loblolly pine but included some red oak and sweetgum and an understory of shrubs. In Darlington County about half of the acreage is cultivated and the other half is in cutover pines.

These soils occur near the Flint, Wahee, Leaf, Kalmia, Independence, and Huckabee soils. They are better drained than the Flint, Wahee, and Leaf soils. They have a thicker surface layer and a more friable subsoil than the Flint soils and a redder subsoil than the Kalmia soils. The Cahaba soils have a finer textured B horizon than the Independence and Huckabee soils. They have good, rather than excessive, drainage.

The Cahaba soils have a few iron concretions on the surface. Their surface layer ranges from 12 to 18 inches in thickness and from brown to gray in color. The subsoil ranges in color from dark red to yellowish red.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. Permeability is moderate to slow, and the rate of infiltration is moderate. The water-holding capacity is low. The soils are medium acid to strongly acid.

Cahaba fine sandy loam, level phase (CaA) (0 to 2 percent slopes).—This soil occupies small areas. The following describes a profile in a moist, cultivated field, 2 miles north of Montclare on the T. C. Coxe farm:

A_p 0 to 6 inches, brown (10YR 5/3) fine sandy loam; weak, fine, crumb structure; very friable; contains many roots; medium acid; 6 to 7 inches thick; abrupt, smooth lower boundary.

A_2 6 to 13 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; weak, fine, crumb structure; very friable; contains many roots; medium acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_1 13 to 18 inches, yellowish-red (5YR 5/6) fine sandy loam; weak, medium, subangular blocky structure; friable; strongly acid; 5 to 7 inches thick; clear, wavy lower boundary.

B_2 18 to 32 inches, dark-red (2.5YR 3/6) fine sandy clay loam; weak, medium, subangular blocky structure; friable; has patchy clay films on peds and numerous pores and root holes; strongly acid; 12 to 16 inches thick; gradual, wavy lower boundary.

C 32 inches+, red (2.5YR 4/6) sandy clay and sandy clay loam; has a few, medium, prominent mottles of brownish yellow (10YR 6/6).

In some small areas the texture of the surface layer is sandy loam.

Cahaba fine sandy loam, level phase, is well suited to most of the crops grown in the county. It is used mainly for cotton, corn, small grains, and soybeans. It is also suited to Coastal bermudagrass, bahiagrass, and sericea lespedeza grown for pasture or hay. If large amounts of fertilizer are applied and a cover crop is turned under each year, row crops can be grown continuously. The soils retain most of the added fertilizer. They cannot be tilled so soon after a rain, however, as some other upland soils, and they tend to crust over and become hard in dry periods. Wind erosion is not a hazard, for the areas are small and are protected by trees.

This soil is well suited to loblolly and slash pines. Some areas that have been cultivated are being replanted to pines. In others the pines are reseeding naturally. Strips of bicolor lespedeza planted along the edges of fields will help to prevent the trees from using nutrients needed for crops and will provide food for wildlife. (Capability unit I–1; woodland group 2.)

Cahaba fine sandy loam, gently sloping phase (CaB) (2 to 6 percent slopes).—This soil has a profile similar to that of Cahaba fine sandy loam, level phase, but it generally occurs in smaller areas. Included in mapping are some small areas that have slopes steeper than 6 percent; these areas generally occur in narrow bands that are parallel to drainageways.

This soil is suited to the same crops as Cahaba fine sandy loam, level phase. Yields are about the same if similar amounts of fertilizer are applied. If the soil is planted to row crops, however, it is necessary to use terracing, to establish grass waterways, and to apply other water-control practices to prevent erosion. (Capability unit IIe–1; woodland group 2.)

Caroline Series

The Caroline series is made up of moderately well drained soils that have a thick subsoil. The soils have formed in beds of unconsolidated sand and clay. The areas have strong slopes and lie between the uplands and the streams that dissect areas along the line of Darlington and Florence Counties. Most of the slopes are between 10 and 15 percent, but in some places they are between 6 and 10 percent. The original vegetation consisted of longleaf and loblolly pines, red and white oaks, and a few sweetgums. There was an understory of gallberry and other kinds of holly and other shrubs. The present vegetation consists of cutover loblolly pine and oak.

These soils occur near the Ruston and Norfolk soils and Mixed alluvial land. They have a finer textured, more plastic subsoil than the Norfolk and Ruston soils and slower drainage. The subsoil is not so yellow as that of the Norfolk soils. The Caroline soils are steeper and are better drained than Mixed alluvial land.

The surface layer of the Caroline soils ranges from 8 to 18 inches in thickness and from grayish brown to gray in color. The subsoil ranges from brown to yellowish red in color.

These soils are medium in their content of organic matter and in their natural supply of plant nutrients. Permeability is slow. The rate of infiltration is slow, and the water-holding capacity is moderate. Only one soil of this series, Caroline fine sandy loam, eroded strongly sloping phase, is mapped in this county.

Caroline fine sandy loam, eroded strongly sloping phase (CfD2) (10 to 15 percent slopes).—This soil is too steep for cultivation. The following describes a profile in a moist, wooded area, 1 mile south of Palmetto School on the Braxton Huggins farm:

A_1 0 to 2½ inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, fine, crumb structure; very friable; slightly acid; 2 to 3 inches thick; clear, smooth lower boundary.

A_2 2½ to 13 inches, pale-brown (10YR 6/3) fine sandy loam; weak, fine, crumb structure; very friable; medium acid; 10 to 12 inches thick; clear, wavy lower boundary.

B_{21} 13 to 20 inches, yellowish-red (5YR 5/6) fine sandy clay loam; moderate, medium, subangular blocky structure; friable when moist, but slightly plastic and sticky when wet; thin, continuous clay films on peds; medium acid; 7 to 10 inches thick; clear, smooth lower boundary.

B_{22} 20 to 30 inches, yellowish-red (5YR 5/8) fine sandy clay; friable when moist, but plastic and slightly sticky when wet; moderate, medium, subangular blocky structure; thin, continuous clay films on peds; medium acid; 7 to 10 inches thick; clear, smooth lower boundary.

B_3 30 to 38 inches, strong-brown (7.5YR 5/6), heavy sandy clay loam; common, medium, distinct mottles of brownish yellow (10YR 6/8); moderate, medium, angular blocky structure; friable when moist, but plastic and slightly sticky when wet; patchy clay films on peds; strongly acid; 9 to 12 inches thick; gradual, wavy lower boundary.

C 38 inches+, yellowish-red (5YR 5/6) sandy clay; many, medium, prominent mottles of red (10R 4/6), brownish yellow (10YR 6/8), and gray (10YR 6/1); massive; friable to firm; patchy clay films.

In some small areas the surface layer is sandy loam.

Caroline fine sandy loam, eroded strongly sloping phase, is not suited to row crops, nor is it suited to crops grown for hay or pasture. Nevertheless, if it is needed for hay or pasture, it can be used to grow sericea lespedeza and bahiagrass. The soil needs large amounts of fertilizer and lime. Sometimes, crops are damaged by lack of moisture.

This soil is fairly well suited to loblolly pine. Bicolor lespedeza can be planted in openings in the woods to provide food and cover for quail, but it must be well fertilized. There are some good sites for fishponds. (Capability unit VIe–2; woodland group 6.)

Chewacla Series

The Chewacla soils are level to nearly level and are somewhat poorly drained. They are fine textured and have only weak profile development or none at all. These deep soils have formed from alluvium that was washed from the Coastal Plain and the Piedmont. They occur on the first bottoms of large streams where overflow from the streams adds fresh deposits. Most of the soils occur along the Pee Dee River, but there is a small acreage along the Lynches River. The original vegetation consisted mainly of blackgum, sweetgum, and poplar, but there were some oaks and longleaf and loblolly pines. The areas are now mainly in cutover pines.

These soils occur near the Congaree and Wehadkee soils. They are not so well drained as the Congaree soils but are better drained than the Wehadkee.

The surface layer of the Chewacla soils ranges in thickness from 6 to 12 inches. The subsoil varies in degree of development and ranges in texture from silt loam to silty clay.

These soils are medium in their content of organic matter and in their supply of plant nutrients. Permeability is moderate, and the water-holding capacity is high. The soils are medium acid. Only one soil of the series, Chewacla silt loam, is mapped in this county.

Chewacla silt loam (Ch) (0 to 2 percent slopes).—This soil occupies areas that are flooded occasionally by the waters of adjacent streams. The following describes a profile in a moist, cutover woodland, 4 miles north of Montclare on the T. C. Coxe farm:

A_0 1 to 0 inch of dark-brown leaf mold.

A_{11} 0 to 3 inches, grayish-brown (10YR 5/2) silt loam; friable; weak, fine, crumb structure; many roots; medium acid; 3 to 4 inches thick; clear, smooth lower boundary.

A_{12} 3 to 8 inches, dark grayish-brown (10YR 4/2) silty clay; friable; weak, medium, subangular blocky structure; contains numerous pores; has some small iron concretions; medium acid; 4 to 7 inches thick; clear, wavy lower boundary.

C 8 to 36 inches+, gray and yellowish-brown silty clay loam; weak, medium, subangular blocky structure; friable.

In some areas the surface soil is silty clay loam.

If adequately drained, Chewacla silt loam is well suited to corn, small grains, soybeans, tall fescue, bermudagrass, whiteclover, dallisgrass, and annual lespedeza. Shallow ditches can be used to provide drainage. If large amounts of fertilizer and lime are applied, row crops can be grown every year. The soil responds well to fertilizer. Corn, soybeans, and small grains are sometimes damaged by overflow. Yields of hay and pasture crops are high.

This soil cannot be cultivated or grazed so soon after a rain as some of the other upland soils. It is suited to sprinkler irrigation.

This soil has a high site index for loblolly pine. Hardwoods of good quality can also be grown. (Capability unit IIIw–3; woodland group 1.)

Congaree Series

The Congaree series consists of deep, level to nearly level soils that are well drained. These soils have formed in alluvium washed from granite, gneiss, and schist of the Piedmont, mixed with materials washed from the Coastal Plain. They occur on first bottoms. The areas are mostly along the Pee Dee River, but some are along the Lynches River. The original vegetation consisted of red and white oaks, beech, poplar, and some longleaf pines, and the same kinds of trees now grow in the woodlands. In this county about half of the acreage of these soils is woodland, and the other half is cropland or pastureland.

These soils occur near the Chewacla and Wehadkee soils. They are on slightly higher areas and are better drained than the Chewacla and Wehadkee soils, and their profiles show more color development.

In the Congaree soils the texture in the lower part of the profile varies. The solum ranges from 20 to 24 inches in thickness.

These soils have a medium supply of organic matter, and the natural supply of plant nutrients is high. Permeability is moderately rapid. The rate of infiltration and the water-holding capacity are high. The soils are slightly acid to medium acid.

Congaree fine sandy loam (Cn) (0 to 2 percent slopes).—This soil occupies areas that are flooded occasionally by overflow from adjacent rivers. The following describes a profile in a moist, cultivated field; on the T. C. Coxe farm:

A_p 0 to 7 inches, dark-brown (10YR 4/3) fine sandy loam; weak, fine, crumb structure; very friable; slightly acid; 7 to 8 inches thick; abrupt, smooth lower boundary.

C_1 7 to 27 inches, dark reddish-brown (5YR 3/4) fine sandy clay; weak, fine, subangular blocky structure; friable;

numerous pores and mica flakes; medium acid; 18 to 24 inches thick; clear, wavy lower boundary.

C_2 27 inches+, gray and reddish-brown sand and sandy clay.

Included are some small areas of Chewacla soils that were too small to map separately. Also included are some small areas that have a surface layer of silt loam or sandy loam.

Congaree fine sandy loam is well suited to corn, small grains, soybeans, and truck crops. It is also well suited to annual lespedeza, bahiagrass, tall fescue, bermudagrass, whiteclover, dallisgrass, and reseeding crimson clover grown for hay and pasture. If large amounts of fertilizer are used each year and sufficient organic matter is turned under, row crops can be grown continuously. In some years row crops may be lost because of flooding. Yields are generally high, however; the yields of corn are particularly high. Pastures on this soil provide excellent forage. The soil can be tilled or grazed much sooner after rains than the other soils on first bottoms. It is suited to sprinkler irrigation.

This soil is well suited to slash and loblolly pines. The pines need protection from fire and grazing. (Capability unit IIw-4; woodland group 1.)

Congaree silt loam (Co) (0 to 2 percent slopes).—The profile of this soil is finer textured throughout than that of Congaree fine sandy loam, but it is otherwise similar. This soil can be used for similar crops and requires about the same management, but it cannot be tilled or grazed so soon after a rain. (Capability unit IIw-4; woodland group 1.)

Coxville Series

The soils of the Coxville series are deep and nearly level and are poorly drained. They have formed in beds of unconsolidated sand and clay. These soils occupy large, flat areas or are in oval-shaped basins known locally as Carolina bays. They are widely distributed throughout the uplands of the county in areas below the Sand Hills. The original vegetation was loblolly and longleaf pines, sweetgum, blackgum, poplar, red oak, cypress, gallberry, and sumac. Now, about 60 percent of the acreage has been cleared; the rest is in cutover loblolly and longleaf pines and hardwoods.

These soils occur near the Norfolk, Marlboro, Goldsboro, Dunbar, Portsmouth, and Lynchburg soils. They occur in lower positions than the Norfolk and Marlboro soils and are not so well drained. In addition, they have a gray subsoil. The soils are more poorly drained than the Goldsboro and Dunbar soils and have a grayer subsoil, mottled with red and yellow, rather than a yellow subsoil, mottled with gray. They have a finer textured, grayer subsoil than the Lynchburg soils and are better drained than the Portsmouth soils but do not have the thick, organic surface layer.

The surface layer of the Coxville soils ranges from 4 to 14 inches in thickness. Before the soils are cultivated, the surface layer is black to dark gray. In soils that have been tilled for several years, however, the organic matter is burned out and the surface layer is gray to light gray. The texture of the subsoil ranges from sandy clay loam to sandy clay. In some places there are mottles of pale yellow rather than red. In places, where the soil occurs in Carolina bays, the subsoil is pale gray.

The soils have a medium content of organic matter, and the natural supply of plant nutrients is medium. Permeability is slow. The rate of infiltration is slow, but the water-holding capacity is moderate. The soils are acid.

Coxville sandy loam (Cx) (0 to 2 percent slopes).—This soil is in level to depressed areas where there is no risk of erosion from wind or water. The following describes a profile in a moist, cultivated field, 2 miles northeast of Darlington on the R. E. Goodson farm:

A_p 0 to 6 inches, dark-gray (10YR 4/1) sandy loam; very friable when moist, but hard when dry; weak, fine, crumb structure; medium acid; 5 to 7 inches thick; abrupt, smooth lower boundary.

B_{21g} 6 to 22 inches, gray (10YR 5/1) sandy clay; common, medium, faint mottles of dark yellowish brown (10YR 4/4); weak, medium, subangular blocky structure; friable when moist, but plastic and sticky when wet; continuous clay films; strongly acid; 15 to 18 inches thick; gradual, wavy lower boundary.

B_{22g} 22 to 36 inches, gray (10YR 5/1) sandy clay; many, medium, faint mottles of dark yellowish brown (10YR 4/4) and a few, fine, prominent mottles of red (2.5YR 4/8); the red mottles appear to be the beginning of concretions; weak, medium, subangular blocky structure; friable when moist, but plastic and sticky when wet; strongly acid; 12 to 15 inches thick; gradual, wavy lower boundary; water table at a depth of 30 inches.

C_g 36 inches+, mixed gray, brown, and red clay and sandy clay; massive or angular blocky structure.

Included with this soil are some areas that have a loamy surface layer. Also included are small areas of Dunbar, Lynchburg, and Portsmouth soils that were too small to map separately.

Coxville sandy loam must be drained before it can be cultivated or used for pasture. Drainage can be improved by open ditches. Tile also can be used if there are suitable outlets, but in many places in the Carolina bays it is hard to locate suitable outlets. The soil cannot be cultivated so soon after a rain as other nearby soils. It puddles easily during rainy periods if livestock are allowed to graze.

If drained, this soil is well suited to corn, small grains, soybeans, and truck crops. It is also suited to dallisgrass, tall fescue, bermudagrass, whiteclover, and annual lespedeza grown for hay and pasture. If fertilizer is used and large amounts of crop residues are turned under, the soil can be used for row crops every year. Choose a cropping system that includes cover crops and crops grown as green manure. The soil needs lime for most field crops and pasture; it should be tested every 3 or 4 years to determine the amount of lime to use. Yields of crops and pasture are high.

The soil has a high site index for loblolly pine. The hardwoods are mainly gums.

This soil provides good sites for dug irrigation pits. Each site must be checked, however, to determine the depth to water-bearing sand. (Capability unit IIIw-2; woodland group 3.)

Coxville fine sandy loam (Cv) (0 to 2 percent slopes).—Most of this soil is south and west of Lamar, but it occurs throughout the county. Only about a third of the acreage is cultivated.

The profile of this soil is finer textured throughout than that of Coxville sandy loam. The surface soil ranges from loam to fine sandy loam in texture and is only 4 to 10 inches thick. This soil has fewer mottles in the

subsoil than Coxville sandy loam. The internal drainage and the infiltration rate are also somewhat slower, but the soil is suited to the same crops and requires the same management for comparable yields. (Capability unit IIIw–2; woodland group 3.)

Dunbar Series

The Dunbar soils are level or nearly level and are somewhat poorly drained. They are deep soils and have formed in beds of unconsolidated sand and clay. The soils are on uplands throughout the county. The original vegetation consisted mainly of longleaf and loblolly pines, sweetgum, and poplar, but it included some oaks and maples. About 90 percent of the areas are now cultivated; the rest are in cutover pine.

The soils occupy areas between the well-drained Norfolk and Marlboro soils and the poorly drained Coxville and Portsmouth soils. They have a grayer, more mottled subsoil than the Norfolk and Marlboro soils. The soils occur at higher elevations than the Coxville and Portsmouth soils, but they are more mottled. The Dunbar soils are also near the Goldsboro and Lynchburg soils. They are more poorly drained than the Goldsboro soils, have no yellow color in the upper part of the subsurface layer, and are grayer and have more mottles throughout the profile. They have a finer textured subsoil than the Lynchburg soils and slower permeability.

The surface layer of the Dunbar soils ranges from 8 to 14 inches in thickness. The texture of the subsoil ranges from sandy clay loam to sandy clay. In some places the upper part of the subsoil has an olive color, somewhat like that of the Goldsboro soils, and is free of mottling. In other places the subsoil is gray and is similar to that of the Coxville soils, which are poorly drained. The Dunbar soils near Lamar and Syracuse have a subsoil resembling that of the Lynchburg soils. The ones near Hartsville are more plastic and sticky than other Dunbar soils in the county.

The soils have a medium content of organic matter, but the natural supply of plant nutrients is high. Permeability is moderately slow to slow. The soils have a moderate infiltration rate and water-holding capacity. The soils are acid.

Dunbar sandy loam (Ds) (0 to 2 percent slopes).—Most of this soil is cultivated. The following describes a profile in a moist, permanent pasture, 3 miles west of Lamar on the F. C. Humphries farm:

A_p 0 to 7 inches, very dark grayish-brown (10YR 3/2) sandy loam; very friable; weak, fine, crumb structure; medium acid; 6 to 8 inches thick; abrupt, smooth lower boundary.

A_2 7 to 9 inches, light brownish-gray (2.5Y 6/2) sandy loam; very friable; weak, fine, crumb structure; medium acid; 2 to 3 inches thick; clear, smooth lower boundary.

B_1 9 to 12 inches, grayish-brown (2.5Y 5/2) sandy clay loam; a few, medium, distinct mottles of strong brown (7.5YR 5/6); friable; weak, medium, subangular blocky structure; medium acid; 3 to 4 inches thick; clear, smooth lower boundary.

B_2 12 to 33 inches, gray (5Y 5/1) sandy clay; common, coarse, prominent mottles of strong brown (7.5YR 5/6) and a few, medium, prominent red (2.5YR 4/6) mottles; weak, medium, subangular blocky structure; friable when moist, but slightly sticky when wet; thin, continuous clay films; strongly acid; 20 to 24 inches thick; gradual, wavy lower boundary; water table at a depth of 30 inches.

C 33 inches+, gray (5Y 5/1) sand and clay in pockets; has strong-brown (7.5YR 5/6) mottles.

Included with this soil are some areas of Goldsboro and Lynchburg soils that were too small to map separately.

This soil needs to be drained before it can be used for crops and pasture. Drainage can be improved by the use of open ditches. In many places, however, farmers prefer to install tile drains so that the fields will be large enough for farm machinery to be used. The soil cannot be tilled so soon after a rain as the better drained Norfolk soils, but it can be tilled sooner than the nearby Lynchburg and Coxville soils. Additional moisture, if needed, can be supplied by sprinkler irrigation. There are some good sites for dug irrigation pits, but each site must be examined to determine the depth to water-bearing sand.

If drained, this soil is among the most productive in the county. It is well suited to corn, truck crops, small grains, soybeans, cotton, and tobacco. It is also well suited to dallisgrass, annual lespedeza, bahiagrass, vetch, bermudagrass, whiteclover, and reseeding crimson clover grown for hay and pasture. Tall fescue grows well but must not be overgrazed. Lime is required for most crops. If large amounts of fertilizer are used and the content of organic matter is maintained, row crops can be grown year after year. Yields of all crops are high, but yields of tobacco grown on this soil are among the highest in the county.

The site index for loblolly and slash pines is high. If trees are grown, they must be protected from fire and grazing. The soil is not suited to bicolor lespedeza, but annual lespedeza can be planted to provide food and cover for wildlife. (Capability unit IIw–2; woodland group 10.)

Dunbar fine sandy loam (Df) (0 to 2 percent slopes).—Most of this soil is near Lamar, but some areas occur throughout the county. The soil is fine textured throughout the profile and has poorer drainage than Dunbar sandy loam. In addition, the surface soil is only 6 to 12 inches thick, the subsoil is more plastic and sticky, and the permeability and the rate of infiltration are slower. This soil is suited to the same crops as Dunbar sandy loam and requires the same kind of management. (Capability unit IIw–2; woodland group 10.)

Eustis Series

The soils of the Eustis series are gently sloping to sloping and are excessively drained. They have formed in thick beds of unconsolidated sand. The soils occur on uplands of the Coastal Plain. Most of them are near the Pee Dee River Swamp, but some small areas are near the Lee and Chesterfield County lines. The original vegetation was longleaf pine with an understory of scrub oak and shrubs. About 60 percent of the acreage is now in cutover blackjack and turkey oaks with a scattering of pines; the more nearly level areas are cultivated.

These soils occur near the Lakeland, Vaucluse, Gilead, Plummer, Rutlege, Norfolk, and Ruston soils. They have a red to reddish-brown subsoil in contrast to the yellow or yellowish-brown subsoil of the Lakeland soils; otherwise, the two soils are similar. The Eustis soils have a coarser textured subsoil than the Vaucluse and Gilead soils and have no compact, brittle, underlying layer.

They are coarser textured throughout than the Ruston and Norfolk soils and have a lower natural supply of plant nutrients. In contrast to the Plummer and Rutlege soils, the Eustis soils are excessively drained, rather than poorly drained, and they contain less organic matter.

The surface layer of the Eustis soils ranges from weak red to dark grayish brown, depending upon the content of organic matter. The subsoil ranges in color from red to yellowish red and in texture from sand to loamy sand. In thickness, it ranges from 2½ feet to several feet.

These soils are low in content of organic matter and in their natural supply of plant nutrients. Permeability is rapid, and the water-holding capacity is low. The soils are acid.

Eustis sand, gently sloping phase (EsB) (2 to 6 percent slopes).—Most of this soil is cultivated. The following describes a profile in a moist, wooded area:

A_1 0 to 6 inches, weak-red (2.5YR 4/2) sand; weak, fine, crumb structure; very friable; many roots; strongly acid; moderate content of organic matter; 5 to 8 inches thick; clear, smooth lower boundary.

A_2 6 to 12 inches, yellowish-brown (10YR 5/6) sand; weak, fine, crumb structure; very friable; many roots; medium acid; 5 to 7 inches thick; gradual, smooth lower boundary.

B_1 12 to 34 inches, yellowish-red (5YR 5/8), loose sand; structureless; many roots; medium acid; 20 to 36 inches thick; clear, wavy lower boundary.

B_2 34 to 46 inches, red (2.5YR 4/8) loamy sand; weak, medium, crumb structure; very friable; few roots; medium acid; 12 to 20 inches thick; gradual, wavy lower boundary.

C 46 inches+, red (2.5YR 5/8), loose sand; structureless.

Included with this soil in mapping are many areas of colluvial material and wet, seepy areas that were too small to map separately. Also included are small areas of Lakeland soils and some areas that have loamy sand surface layers.

Although moderate amounts of organic matter accumulate in Eustis sand, gently sloping phase, under forest, the organic matter leaches out quickly when the soil is cultivated. Furthermore, added plant nutrients leach out easily. The soil can be cultivated soon after rains and does not become hard when dry. If it is dry in spring, however, the risk of wind erosion is severe.

Watermelons, corn, crotalaria, rye, peaches, and velvetbeans are the main crops. Sericea lespedeza, bahiagrass, and Coastal bermudagrass are generally grown for grazing. Yields of most row crops are low, but if large amounts of organic matter are added and fertilizer is applied frequently, crops make fair yields.

Planting windbreaks at right angles to the prevailing winds will help to control erosion in large fields. If scrub oak is controlled, pine trees will grow fairly well. (Capability unit IIIs-2; woodland group 7.)

Eustis sand, sloping phase (EsC) (6 to 10 percent slopes).—This soil consists mainly of cutover woodland. It has steeper slopes than Eustis sand, gently sloping phase, and is more likely to be eroded by runoff water. The soil is droughty, and plant nutrients leach out quickly.

Watermelons, corn, crotalaria, rye, cowpeas, and sericea lespedeza are the main crops grown. If the soil is used for row crops, close-growing crops should be seeded 3 out of 4 years. For crops to make fair yields, fertilizer must be added frequently and practices must be applied to control erosion. If this soil is needed for grazing, sericea lespedeza, bahiagrass, and Coastal bermudagrass are the best plants to use for seeding, although yields are poor. Pine trees grow fairly well. (Capability unit IVs-1; woodland group 7.)

Eustis loamy sand, gently sloping phase (EmB) (2 to 6 percent slopes).—This soil has a profile similar to that described for Eustis sand, gently sloping phase, but the texture is finer throughout. In places the surface layer is thinner and is underlain at depths of 30 to 36 inches by a layer of sandy loam to sandy clay loam. The soil generally occurs in small areas.

The principal crops are cotton, crotalaria, watermelons, rye, oats, corn, peaches, peanuts, and cowpeas. If the soil is fertilized frequently, yields are fair. Tillage needs to be on the contour. A cover crop should be grown 3 out of 4 years and turned under.

Sericea lespedeza, grown for hay and grazing, produces good yields. Bahiagrass and Coastal bermudagrass are the principal crops grown for pasture. Pine trees grow fairly well. (Capability unit IIIs-1; woodland group 7.)

Flint Series

The soils of the Flint series are level to sloping and are moderately well drained. They are moderately deep soils that have formed from a mixture of materials washed from the Coastal Plain and the Piedmont. The soils occur on the second terraces of large streams in the county, but they are mostly in the eastern part of the county along the Pee Dee River. The original vegetation consisted of loblolly pine and red and white oaks with some gum and holly. The present vegetation is made up mainly of cutover loblolly pine and hardwoods; only a small acreage is used for crops and pasture.

These soils occur near the Kalmia, Cahaba, Leaf, Myatt, and Wahee soils. They are not so well drained as the Kalmia and Cahaba soils, have a thinner surface soil, and occur at lower elevations. They are better drained than the Leaf and Myatt soils, have a brighter color, and occur at higher elevations. The Flint and Wahee soils occur in similar positions and have similar profiles. The Flint soils, however, have a subsoil that ranges in color from brown to red rather than from yellowish red to reddish brown.

In the Flint soils the subsoil is dominantly red but the color ranges from red or yellowish red to strong brown. The subsoil ranges from 24 to 40 inches in thickness.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. Permeability is slow. The rate of infiltration is slow, and the water-holding capacity is moderate. The soils are slightly acid to strongly acid.

Flint fine sandy loam, level phase (FfA) (0 to 2 percent slopes).—This soil is in cutover woodland or in crops or pasture. The following describes a profile in a moist pasture, 1½ miles northeast of Montclare on the T. C. Coxe farm:

A_p 0 to 6 inches, dark-brown (7.5YR 4/4) fine sandy loam; weak, fine, crumb structure; very friable; slightly acid; 5 to 6 inches thick; abrupt, smooth lower boundary.

B_{21} 6 to 12 inches, red (2.5YR 4/6) clay; moderate, coarse, subangular blocky structure breaking to moderate, fine, angular and subangular blocky structure; friable when

moist, but plastic and sticky when wet; continuous clay films; slightly acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_{22} 12 to 42 inches, red (2.5YR 4/6) clay; a few, medium, distinct mottles of red (10R 4/6) and common, medium, prominent mottles of strong brown (7.5YR 5/6); the red mottles increase in size and number with increasing depth; moderate, medium, subangular blocky structure friable when moist, but plastic and sticky when wet continuous clay films; strongly acid; 28 to 34 inches thick gradual, wavy lower boundary.

C 42 inches, red and yellow clay and fine sandy clay loam very fine mica flakes.

Included with this soil are some areas of Wahee soil that were too small to map separately. In some areas the surface layer is silt loam and is thinner than where it is fine sandy loam.

Water moves slowly through Flint fine sandy loam, level phase, and is likely to accumulate on the more nearly level areas. In some places suitable outlets for drains are difficult to locate, but shallow V-type ditches can be used to remove excess surface water. The soil becomes hard during periods of extended drought and is difficult to till. During wet periods grazing must be controlled to prevent the soil from puddling and packing. This soil responds well if fertilizer is added.

If drained, this soil is well suited to oats, corn, and soybeans and is fairly well suited to cotton. It is also suited to bermudagrass, dallisgrass, tall fescue, bahiagrass, crimson clover, common lespedeza, and whiteclover grown for pasture and hay. The soil is better suited to winter pasture than to summer pasture. Lime is required for best yields of all pasture plants.

This soil is better suited to pasture than to trees, but it is suited to loblolly, slash, and longleaf pines. If used for trees, it must be protected from fire and grazing. Bicolor lespedeza can be planted in odd corners and openings to provide cover and food for wildlife. (Capability unit IIe-3; woodland group 8.)

Flint fine sandy loam, sloping phase (FfC) (6 to 10 percent slopes).—This soil has a profile similar to that of Flint fine sandy loam, level phase, but it has stronger slopes, and in many places the surface soil is only 4 inches thick. Also, this soil occurs in long, narrow bands, parallel to and sloping toward streams, rather than in large, broad areas.

This soil is likely to erode and is best kept in trees or in close-growing crops. It is suited, however, to oats, corn, and cotton. The soil is suited to bahiagrass, sericea lespedeza, dallisgrass, white and crimson clovers, bermudagrass, and annual lespedeza grown for hay or pasture. If it is used for row crops, tillage needs to be on the contour and close-growing crops should be planted every other year to help control erosion. In addition, it is necessary to establish terraces, to grass the waterways, and to use other water-control practices. The soil is well suited to loblolly, slash, and longleaf pines. (Capability unit IIIe-3; woodland group 12.)

Gently Sloping and Sloping Land, Sandy and Clayey Sediments

These miscellaneous land types consist of soil materials and of soils formed in beds of unconsolidated sand and clay. The areas have gentle slopes. They are in the Sand Hills in the northern part of the county. Most of the acreage occurs along the Chesterfield County line in areas that are less than 10 acres in size. The original vegetation was mostly loblolly and longleaf pines and turkey and blackjack oaks, but it included some hickory. Now, most of the acreage is in scrub oak and cutover pine.

These miscellaneous land types occur near the Lakeland, Gilead, and Vaucluse soils. They show some profile development, but the profile development is variable. The surface layer is thinner than that of the Lakeland soils, and the subsoil has a more variable texture. The profile is not so well developed as that of the Gilead and Vaucluse soils.

The surface layer of these miscellaneous land types ranges in color from light gray to light brownish gray. It is generally 5 inches thick but ranges from 3 to 10 inches in thickness. The subsoil is generally stratified and ranges from sand to clay in texture. It occurs in bands of variable thickness. The color of the subsoil is pink, red, yellow, gray, and white. In many places there is no B horizon.

These materials are low in organic matter and plant nutrients. They are well drained and have a low water-holding capacity. Permeability and the rate of infiltration are slow.

Gently sloping land, sandy and clayey sediments (GaB) (2 to 6 percent slopes).—This miscellaneous land type occurs in the Sand Hills at the bases of slopes or on hilltops. The following describes a profile in a moist site under scrub oak:

A_1 0 to 4 inches, light brownish-gray (10YR 6/2), light sandy loam; weak, fine, crumb structure; very friable; medium acid; 3 to 4 inches thick; abrupt, smooth lower boundary.

B_2 4 to 7 inches, pale-brown (10YR 6/3) sandy clay loam; weak, medium, subangular blocky structure; friable; slightly sticky when wet; 2 to 3 inches thick; strongly acid; clear, smooth lower boundary.

C 7 inches+, gray, pink, red, and white clay to sandy clay; massive; thin clay films; friable to firm when moist, but plastic and sticky when wet; medium acid.

Included with this mapping unit are some areas of Gilead and Vaucluse soils that were too small to map separately.

This miscellaneous land type is not suited to row crops, nor is it suited to hay crops and pasture. It is best used for trees, but it has a site index of only about 60 for loblolly pine.

The large, open areas should be planted to pine. Manage woodlands primarily for the production of pulpwood. Control scrub oaks and encourage natural reseeding of pines by scarifying the areas and controlling fire. In open woodland areas bicolor lespedeza can be planted in strips to provide cover and food for wildlife. (Capability unit VIIe-2; woodland group 14.)

Sloping land, sandy and clayey sediments (ScC) (6 to 10 percent slopes).—This miscellaneous land type is similar to Gently sloping land, sandy and clayey sediments, but generally it is in smaller areas and is steeper. Consequently, it is more likely to erode. The areas have about the same site index for pine and require similar management. (Capability unit VIIe-2; woodland group 14.)

Sloping land, sandy and clayey sediments, eroded phase (ScC2) (6 to 10 percent slopes).—This miscellaneous land type occupies areas of about 5 acres or less that generally are parallel to natural drainageways. It is steeper and has a thinner surface layer than Gently sloping land, sandy and clayey sediments. There are many galled spots and a few gullies. Included with this miscellaneous land type are some strongly sloping to moderately steep areas.

This land type is best used as woodland, but it is difficult to establish pine trees on the galled spots. Mulching may be necessary. (Capability unit VIIe-2; woodland group 14.)

Gilead Series

The soils of the Gilead series are gently sloping to sloping and are moderately well drained. They are moderately deep soils that are underlain by a compact, brittle substratum at depths of 30 to 36 inches. These soils have formed in beds of unconsolidated sand and clay. They occur mostly in areas 50 to 100 acres in size in the northern and northwestern parts of the county. The native vegetation consisted of longleaf and loblolly pines with an understory of scrub oak. Now, about half of the acreage is cultivated; the other half is in cutover pine and scrub oak. These soils are among the more productive soils of the Sand Hills. Their productivity is lower, however, than the average for the county.

The Gilead soils occur near the Norfolk, Ruston, Lakeland, Eustis, and Vaucluse soils. Their subsoil is less friable than that of the Norfolk soils and is mottled at a shallower depth. Its color is a paler, duller yellow than that of the Norfolk subsoil and contrasts with the red color of the Ruston subsoil. Furthermore, the subsoil contains a compacted layer that is absent in the Norfolk and Ruston soils. The Gilead soils are not so well drained as the Lakeland and Eustis soils and have a finer texture throughout the profile. Generally, their compacted layer, or fragipan, is less pronounced than that of the Vaucluse soils.

In some places these soils have fragments of sandstone and quartz on the surface. In many places ferruginous sandstone occurs, but not in large enough quantities to interfere with tillage. The surface layer ranges in thickness from 6 to 30 inches, and the thickness of the entire solum, from 24 to 40 inches. In areas near the Norfolk soils, the subsoil is friable sandy clay loam, but in areas near the Vaucluse soils, the subsoil is sandy loam and contains a compacted, or hard, cemented layer. The color of the subsoil ranges from yellow to reddish yellow. In some places mottles of gray, red, weak red, and yellow occur in the upper part of the subsoil.

These soils are low in organic matter and in their natural supply of plant nutrients. The water-holding capacity is low. In many places the compacted layer in the subsoil causes water to move slowly through the soil. In some places, especially on the sides of slopes, there are wet, seepy areas. The soils are medium acid to strongly acid.

Gilead sandy loam, gently sloping phase (GeB) (2 to 6 percent slopes).—This soil has a sandy surface layer. It is easy to till and can be tilled soon after a rain. The following describes a profile in a moist, cutover woodland, north of Clyde along State Highway No. 761:

A_1 0 to 5 inches, olive-gray (5Y 4/2) sandy loam; weak, fine, crumb structure; very friable; medium acid; 4 to 6 inches thick; clear, smooth lower boundary.

A_2 5 to 13 inches, pale-olive (5Y 6/3) sandy loam; weak, fine, crumb structure; very friable; medium acid; 5 to 7 inches thick; clear, wavy lower boundary.

B_1 13 to 18 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; weak, medium, subangular blocky structure; friable; strongly acid; 4 to 7 inches thick; clear, wavy lower boundary.

B_{2m} 18 to 27 inches, olive-yellow (2.5Y 6/6) sandy clay loam; a few, medium, prominent mottles of red (2.5YR 4/8) and common, medium, distinct mottles of yellowish brown (10YR 5/8); mottles increase in size and prominence with increasing depth; moderate, medium, subangular blocky structure; friable to firm; thin, patchy clay films; medium acid; 8 to 12 inches thick; abrupt, wavy lower boundary.

C 27 inches+, gray clay mottled with red and yellow; massive; friable when moist, but plastic and slightly sticky when wet; nonconforming layer.

Included with this soil are some areas of Lakeland and Vaucluse soils that were too small to map separately.

This soil is best suited to oats, cotton, corn, crotalaria, and velvetbeans. It is fairly well suited to bahiagrass, sericea lespedeza, bermudagrass, and crimson clover grown for hay and grazing. If the soil is cropped, terracing, use of waterways, and other water-control practices will be needed to conserve soil and moisture. The soil should be kept in close-growing crops at least half the time. Large fields should be protected by windstrips and windbreaks. Yields are only fair, even though large amounts of organic matter and fertilizer are added. Lime is required to maintain yields of hay and pasture crops.

This soil is suited to loblolly and slash pines. Bicolor lespedeza can be planted in odd corners and in woodland openings to provide cover and food for wildlife. Some sites are suitable for ponds, but each site must be checked carefully to determine if there are underground outlets that will allow water to seep out. (Capability unit IIe-4; woodland group 2.)

Gilead sandy loam, sloping phase (GeC) (6 to 10 percent slopes).—The profile of this soil is similar to that of Gilead sandy loam, gently sloping phase. This soil has stronger slopes, however. It occurs in smaller areas, and, consequently, it is not so likely to be eroded by wind.

This soil is suited to the same crops as Gilead sandy loam, gently sloping phase. It is more droughty, however, and the risk of water erosion is more serious. Yields are lower, even though similar amounts of fertilizer are added and the soils are managed the same otherwise. Close-growing crops need to be grown 2 years out of 3. Tillage should be on the contour to prevent losses of soil and water. (Capability unit IIIe-4; woodland group 9.)

Gilead loamy sand, gently sloping thick surface phase (GdB) (2 to 6 percent slopes).—This soil has a thicker, sandier surface layer than Gilead sandy loam, gently sloping phase. The surface layer ranges from 18 to 30 inches in thickness.

This soil can be used and managed about the same as Gilead sandy loam, gently sloping phase. It has less moisture available for plants, plant nutrients leach out more easily, and there is a greater risk of wind erosion. Yields are lower, even though similar amounts of ferti-

lizer are applied. Furthermore, the soil requires larger amounts of organic matter and fertilizer to maintain yields. (Capability unit IIs–1; woodland group 9.)

Gilead loamy sand, sloping thick surface phase (GdC) (6 to 10 percent slopes).—This soil has steeper slopes than Gilead sandy loam, gently sloping phase, and a coarser textured surface layer that is 18 to 30 inches thick. In addition, its profile is sandier throughout and less moisture is held available for plants.

This soil is suited to the same crops as Gilead sandy loam, gently sloping phase, but yields are lower. If it is cropped, close-growing crops need to be grown 2 years out of 3. This soil is best used for pasture, hay crops, or trees. Sericea lespedeza is the best plant to seed for hay and grazing. Loblolly, slash, and longleaf pines grow well on this soil. (Capability unit IIIe–4; woodland group 9.)

Goldsboro Series

The soils of the Goldsboro series are level to nearly level and are moderately well drained. These deep soils occur on the middle Coastal Plain. They have formed in beds of unconsolidated sand and clay. The original vegetation consisted mainly of longleaf and loblolly pines and red and white oaks, but it included some poplar. Most of the acreage is now used for cultivated crops, or it is in cutover loblolly and longleaf pines.

These soils occur near the Norfolk, Marlboro, Dunbar, Lynchburg, and Coxville soils. The Goldsboro soils are not so well drained as the Norfolk and Marlboro soils and occur at slightly lower elevations. They have a thinner surface layer than the Norfolk soils. The upper part of the subsoil has a yellow color similar to that in the Norfolk and Marlboro soils, but it is mottled at depths of 16 to 20 inches. The Goldsboro soils are better drained than the Dunbar, Lynchburg, and Coxville soils. Their subsoil, in texture, is similar to that of the Dunbar and Coxville soils but has no gray color. The subsoil is finer textured than that of the Lynchburg soils and is olive brown, rather than gray mottled with yellowish brown.

The surface layer of the Goldsboro soils ranges from 6 to 16 inches in thickness. The subsoil ranges in texture from sandy clay loam to sandy clay. In places, where the soils occur near Lynchburg and Coxville soils, the C horizon has more gray mottles than that of the normal soil. In some places soft concretions occur throughout the profile.

These soils have a medium content of organic matter and a high natural supply of plant nutrients. Permeability is slow. Surface runoff and internal drainage are medium, but the rate of infiltration is high. The water-holding capacity is moderate. The soils are medium acid to strongly acid. Only one soil of this series, Goldsboro sandy loam, is mapped in this county.

Goldsboro sandy loam (Go) (0 to 2 percent slopes).—Much of this soil occurs throughout the southern part of Darlington County, but most of the acreage is near Lamar and Darlington. The following describes a profile in a moist, cultivated field, one-half mile north of Dubose Crossroads on the W. P. DuBose farm:

A_p 0 to 6 inches, dark grayish-brown (2.5Y 4/2) sandy loam; weak, fine, crumb structure; very friable; medium acid; 6 to 7 inches thick; abrupt, smooth lower boundary.

A_2 6 to 10 inches, pale-yellow (2.5Y 7/4) sandy loam; weak, fine, crumb structure; very friable; slightly acid; 4 to 6 inches thick; clear, smooth lower boundary.

B_{21} 10 to 16 inches, light olive-brown (2.5Y 5/4) sandy clay loam; weak, medium, subangular and angular blocky structure; friable; strongly acid; thin, patchy clay films; 6 to 10 inches thick; gradual, wavy lower boundary.

B_{22} 16 to 36 inches, light olive-brown (2.5Y 5/4) sandy clay loam; common, medium, distinct mottles of yellowish brown (10YR 5/8); mottles increase in number and size with depth; patchy clay films; strongly acid; 18 to 24 inches thick; gradual, wavy lower boundary.

C 36 inches+, strong-brown (7.5YR 5/8) sandy loam to sandy clay loam with mottles of red (2.5YR 4/8) and gray (5Y 6/1).

Included with this soil are some soils that normally occur near the Goldsboro soil. These areas were too small to map separately. In some areas the surface soil is fine sandy loam.

If adequately drained, Goldsboro sandy loam is well suited to most of the crops commonly grown in the county. Tobacco, corn, truck crops, small grains, soybeans, and vetch grow well. The soil is also suited to dallisgrass, white and crimson clovers, bahiagrass, and annual lespedeza. In addition, it is suited to tall fescue, but this crop requires special management. If large amounts of fertilizer are applied and adequate organic matter is turned under, row crops can be grown every year. The soil responds well to fertilizer. Tile drains, or open ditches, or both, are needed to remove excess water. Apply lime as needed.

This soil cannot be cultivated so soon after a rain as the Norfolk and Marlboro soils. It is suited to sprinkler irrigation.

This soil has a high site index for loblolly and slash pines, but it is best used for crops and pasture. (Capability unit IIw–2; woodland group 10.)

Grady Series

The soils of the Grady series are level or nearly level and are poorly drained. They are deep soils that have formed in beds of unconsolidated sand and clay. In this county the soils are at the bottoms of egg-shaped depressions known as Carolina bays. They occur in the Sand Hills on the upper part of the Coastal Plain. The original vegetation consisted mainly of blackgum, tupelo-gum, cypress, and red oak, but it included some loblolly and pond pines. Now, most of the acreage is used for crops or pasture; the rest is in cutover pines and hardwoods.

These soils occur near the Norfolk soils but they occupy lower positions and have poorer drainage. Generally, they have a darker colored surface layer than the Norfolk soils, and their subsoil is gray, mottled with brown, rather than yellow.

The surface layer of the Grady soils ranges from 5 to 12 inches in thickness and from black to light gray in color. The subsoil has a texture that ranges from sandy loam to sandy clay and generally has mottles of brown to pale yellow. In many places, however, the mottles are red or yellowish red, and in some places the mottling is absent or occurs only near or in the parent material. In some places the soils are underlain by beds of sand at depths of 30 to 36 inches.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. Perme-

ability is slow, and the water-holding capacity is moderate. The soils are acid. Only one soil of this series, Grady sandy loam, is mapped in this county.

Grady sandy loam (Gr) (0 to 2 percent slopes).—This soil is in depressions in the northern one-third of the county. The following describes a profile in a moist, cultivated field, 1 mile northwest of Grant's Crossroads:

A_p 0 to 6 inches, black (10YR 2/1) sandy loam; weak, fine, crumb structure; very friable; slightly acid; 6 to 7 inches thick; abrupt, smooth lower boundary.

B_{21g} 6 to 16 inches, grayish-brown (2.5Y 5/2) sandy clay loam; weak, fine, subangular blocky structure; friable when moist, but plastic and slightly sticky when wet; contains many pores and root holes; medium acid; 10 to 12 inches thick; clear, smooth lower boundary.

B_{22g} 16 to 32 inches, gray (10YR 6/1) sandy clay; has many, coarse, prominent mottles of strong brown (7.5YR 5/6) and a few, fine, prominent mottles of red (2.5YR 4/6); the red mottles increase in number with increasing depth; platy to weak, medium, subangular blocky structure; contains many pores; medium acid; 15 to 20 inches thick; gradual, wavy lower boundary.

C_g 32 inches+, brown, gray, and red sand and clay; platy structure; water table at a depth of 34 inches.

In some areas the surface layer is loam.

Grady sandy loam needs to be drained before it can be used for crops or pasture. In some places it is hard to locate suitable outlets for drains, but in most places shallow ditches can be used to remove excess surface water. This soil cannot be cultivated so soon after a rain as the surrounding soils. In wet weather grazing must be controlled to prevent the soil from packing.

If adequately drained, this soil is suited to corn, truck crops, soybeans, and oats. It is also suited to dallisgrass, tall fescue, bermudagrass, whiteclover, and annual lespedeza grown for hay and pasture. If large amounts of fertilizer are applied and adequate amounts of crop residues are turned under, row crops can be grown every year. The soil responds well if fertilizer is added. Lime is required for most crops. The soil is well suited to loblolly and slash pines. (Capability unit IIIw-2; woodland group 3.)

Gullied Land

Gullied land (Gu).—This mapping unit generally occurs in sloping to steep areas. In these areas water has washed so much of the soil away that no soil profile remains. Some of the areas consist of one large gully; others are made up of an intricate network of small gullies. Most of the areas are in the Sand Hills in the northern part of the county.

In some places erosion is no longer active and the areas are healing over. In others the gullies are becoming larger. To prevent further gullying, encourage the growth of all types of native vegetation. Divert as much water as feasible from areas where gullies are becoming larger to prevent the debris from washing onto lower lying soils or into streams. (Capability unit VIIe-2; woodland group 17.)

Huckabee Series

The Huckabee soils are gently sloping to sloping and are excessively drained. They are deep soils that have formed from a mixture of coarse materials washed from the Coastal Plain and the Piedmont. These soils occur on the high terraces of large streams that pass through the county. The original vegetation consisted of longleaf and loblolly pines, red and white oaks, dogwood, and hickory. The present vegetation is cutover pine, scrub oak, and hickory. The soils are less productive than most of the other soils in the county. About 90 percent of the acreage is woodland; the rest is used for crops or is idle.

These soils occur near the Independence, Kalmia, Cahaba, Myatt, and Okenee soils. They have a more yellowish profile than the Independence soils. The Huckabee soils occur at higher elevations than the Kalmia and Cahaba soils, which are well drained, and they are coarser textured throughout. Their drainage differs from that of the Myatt and Okenee soils, which are poorly drained and very poorly drained, respectively, and they occur at a higher elevation.

The surface layer of the Huckabee soils ranges from very dark grayish brown to dark gray or light gray in color, depending upon the content of organic matter. The color of the subsoil ranges from yellowish brown or pale brown to pale yellow. Depth to parent material ranges from 24 to 40 inches.

These soils are naturally low in plant nutrients and in organic matter. Permeability is very rapid, and the water-holding capacity is low.

Huckabee sand, gently sloping phase (HcB) (2 to 6 percent slopes).—Generally, this soil occurs near the break to the upland and at the highest elevations on terraces along the Pee Dee and Lynches Rivers and Black Creek. Most of the soil is gently sloping, but in some places it is nearly level. The following describes a profile in a moist, cultivated field, 3 miles west of Hartsville, along Black Creek on Albert Segars' farm:

A_p 0 to 9 inches, dark olive-gray (5Y 3/2) sand; weak, fine, crumb structure; very friable; medium acid; 8 to 9 inches thick; abrupt, smooth lower boundary.

B_1 9 to 16 inches, pale-olive (5Y 6/3) sand; weak, fine, crumb structure; very friable; medium acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_2 16 to 26 inches, pale-yellow (5Y 7/3) loamy sand; weak, fine, crumb structure; very friable; strongly acid; 10 to 12 inches thick; clear, wavy lower boundary.

C 26 inches+, pale-yellow (5Y 8/3), loose, structureless sand.

Included with this soil in mapping are some areas, too small to map separately, in which the soils have formed from colluvial materials.

In areas under forest moderate amounts of organic matter accumulate in this soil. The organic matter leaches out quickly, however, when the soil is cultivated, and fertilizer that has been added soon leaches out. The soil can be cultivated soon after rains and does not become hard when dry. In large fields there is risk of erosion from wind.

This soil is best suited to watermelons, corn, cowpeas, crotalaria, rye, and velvetbeans. If it is needed to grow hay crops or for grazing, bahiagrass, Coastal bermudagrass, and sericea lespedeza are the best plants to seed. Yields are only fair, even though large amounts of organic matter are added and fertilizer is applied frequently. If feasible, tillage should be on the contour.

Planting windbreaks at right angles to the prevailing winds will help to control erosion in large fields. If scrub

oak is controlled, loblolly, slash, and longleaf pines will grow fairly well. Field borders, odd corners, and openings in the woods can be planted to bicolor lespedeza to provide food and cover for wildlife. (Capability unit IIIs–2; woodland group 7.)

Huckabee sand, sloping phase (HcC) (6 to 10 percent slopes).—This soil is similar to Huckabee sand, gently sloping phase, but is steeper. Consequently, the risk of erosion by water is more serious.

The soil is suited to watermelons, crotalaria, rye, cowpeas, and corn, but these crops make only fair yields. If the soil is used for hay or grazing, sericea lespedeza and Coastal bermudagrass are the best plants to seed. The soil should be kept in close-growing perennial crops 3 years out of 4, and all other suitable practices must be applied to help control erosion. It is best used for loblolly, slash, or longleaf pine. (Capability unit IVs–1; woodland group 7.)

Huckabee loamy sand, gently sloping phase (HbB) (2 to 6 percent slopes).—This soil has a profile similar to that of Huckabee sand, gently sloping phase, but it is finer textured throughout. Because of its finer texture, this soil has more moisture available for plants and crops make better yields. Although most of the soil has gentle slopes, in some places it is nearly level. Most of it is used for cultivated crops.

The soil is suited to crotalaria, watermelons, cotton, corn, rye, cowpeas, oats, and peanuts. If practices are used to control runoff and if fertilizer is applied frequently, fair yields of these crops will be obtained. Large fields should be protected from wind erosion. Sericea lespedeza, bahiagrass, and Coastal bermudagrass, grown for hay or grazing, produce good yields. The soil is suited to loblolly, slash, and longleaf pines. (Capability unit IIIs–1; woodland group 7.)

Independence Series

The Independence series consists of deep, gently sloping soils that are excessively drained. The soils have formed in beds of unconsolidated sand. The sand consisted mainly of material washed from the upper Coastal Plain but included some material washed from the Piedmont. These soils are on the second terraces of the larger streams that flow through Darlington County. Generally, they occur on the highest part of the terraces and are farther back from the stream than the other terrace soils. The original vegetation was loblolly and longleaf pines, red and white oaks, dogwood, and hickory. These soils are more productive than other soils in the county that have similar texture. Most of the acreage is used for cultivated crops.

The soils occur near the Huckabee, Kalmia, Cahaba, Myatt, and Okenee soils. Their profile is more brownish than that of the Huckabee soils. The Independence soils are coarser textured throughout than the Kalmia and Cahaba soils, and they have a lower content of organic matter than the Myatt and Okenee soils. They also occur at higher elevations and have excessive rather than poor or very poor drainage.

The Independence soils have iron concretions on the surface in some places. The subsoil ranges in color from yellowish red to strong brown.

The soils are low in content of organic matter and in their natural supply of plant nutrients. Permeability is rapid, and the water-holding capacity is low. The soils are acid. Only one soil of this series, Independence loamy sand, gently sloping phase, has been mapped in this county.

Independence loamy sand, gently sloping phase (InB) (2 to 6 percent slopes).—Most of this soil occurs on the second terraces of the Pee Dee River. It is predominantly gently sloping, but some small areas are nearly level. The following describes a profile from a moist site under cutover pines, 5 miles south of Society Hill on the J. S. McColl farm:

A_1 0 to 6 inches, dark grayish-brown (2.5Y 4/2) loamy sand; very friable; weak, fine, crumb structure; strongly acid; moderate content of organic matter; 5 to 6 inches thick; clear, smooth lower boundary.

A_2 6 to 12 inches, light yellowish-brown (10YR 6/4) loamy sand; very friable; weak, fine, crumb structure; medium acid; 6 to 8 inches thick; gradual, wavy lower boundary.

B_1 12 to 25 inches, strong-brown (7.5YR 5/6) loamy sand; very friable; weak, fine, crumb structure; medium acid; 10 to 12 inches thick; clear, wavy lower boundary.

B_2 25 to 44 inches, yellowish-red (5YR 5/6) sandy loam; friable; weak, medium, subangular blocky to weak, fine, crumb structure; strongly acid; 18 to 20 inches thick; clear, wavy lower boundary.

C 44 inches+, strong-brown (7.5YR 5/8) loamy sand; very friable; weak, fine, crumb structure.

Included in mapping are some areas occupied by soils that normally occur near this soil and some areas of colluvial soils. The areas were too small to map separately. In some areas the surface soil is fine sandy loam.

Independence loamy sand, gently sloping phase, becomes dry and loose during long periods of drought. As a result there is risk of wind erosion in large fields that are cultivated. Furthermore, fertilizer that has been added leaches out rapidly and organic matter soon burns out. The soil responds better, however, if fertilizer is added, than do other soils of similar texture in the county. It is easy to till and can be tilled soon after rains. The soil does not puddle if grazed when wet.

This soil is well suited to cotton, corn, crotalaria, oats, velvetbeans, cowpeas, peanuts, and sweetpotatoes. These crops make good yields. If the soil is needed for hay and grazing, sericea lespedeza, Coastal bermudagrass, and bahiagrass are the best plants to seed. The soil should be kept in close-growing crops for 2 years out of 3. Contour tillage and other water-control practices are needed. Returning as much organic matter as feasible to the soil will help to increase the water-holding capacity. Planting windbreaks at right angles to the prevailing winds will help to prevent wind erosion in large fields.

Loblolly, slash, and longleaf pines grow well on this soil. Bicolor lespedeza can be planted to provide food and cover for wildlife. (Capability unit IIIs–1; woodland group 4.)

Izagora Series

The soils of the Izagora series are nearly level and are somewhat poorly drained. They are deep soils that have formed in beds of unconsolidated sand and clay washed from the Coastal Plain and the Piedmont. In this county these soils occur on the second terraces of large streams, generally between soils of the Kalmia and Myatt series.

The original vegetation consisted mainly of red and white oaks, blackgum, tupelo-gum, and maple with a scattering of longleaf and loblolly pines. Now, a third of the acreage is used for crops; the rest is in cutover oak, gum, and pine.

These soils occur near the Kalmia, Wahee, Leaf, and Myatt soils. They occupy lower positions and are not so well drained as the Kalmia soils. In addition, they have a grayer color, and, in most places, the upper part of the subsoil is mottled. The Izagora soils occur at slightly lower elevations than the Wahee soils and have a coarser textured subsoil. They have a thicker surface layer than the Leaf soils and a subsoil that is sandy clay loam rather than sandy clay. The Izagora soils are better drained than the Leaf and Myatt soils and have a more yellowish subsoil.

The surface layer of the Izagora soils ranges from 10 to 20 inches in thickness. In some places the upper part of the subsoil is not mottled but has a uniform, olive color, and the profile is mottled at greater depths. Where the Izagora soils occur near the Kalmia soils, which are well drained, they are better drained than normal. Where they occur near the Myatt soils, which are poorly drained, they have poorer than normal drainage.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. Permeability is moderately slow, and the water-holding capacity is moderate. The soils are acid. Only one soil of this series, Izagora fine sandy loam, is mapped in this county.

Izagora fine sandy loam (Iz) (0 to 2 percent slopes).—Most of this soil occurs near Society Hill on the second terraces of the Pee Dee River. The following describes a profile in a moist, cultivated field, 1 mile north of Society Hill and 200 yards to the left of United States Highway No. 15:

A_p 0 to 7 inches, grayish-brown (2.5Y 5/2), light fine sandy loam; weak, fine, crumb structure; very friable; medium acid; 6 to 7 inches thick; abrupt, smooth lower boundary.

A_2 7 to 13 inches, pale-olive (5Y 6/3) fine sandy loam; weak, fine, crumb structure; very friable; medium acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_2 13 to 24 inches, light yellowish-brown (2.5Y 6/4) fine sandy clay loam; a few, medium, faint mottles of light olive brown (2.5Y 5/6) increasing in size and in number with increasing depth; weak, medium, subangular blocky structure; friable; many pores and root holes; the individual grains of sand are coarse and sharp; strongly acid; 9 to 13 inches thick; gradual, wavy lower boundary.

B_3 24 to 36 inches, light-gray (5Y 7/2) sandy clay loam; has many, coarse, distinct mottles of brownish yellow (10YR 6/6) and a few, medium, prominent mottles of red (2.5YR 5/6); weak, coarse, subangular blocky structure; friable; very strongly acid; 12 to 15 inches thick; gradual, wavy lower boundary.

C 36 inches+, gray sand and clay mottled with red, yellow, and pinkish gray.

Included with this soil in mapping are some small areas of Leaf and Myatt soils that were too small to map separately. In some areas the surface soil is sandy loam.

Izagora fine sandy loam occupies areas that are hard to drain. In some places suitable outlets are not available and only shallow, V-type ditches can be used to remove excess surface water. The soil cannot be cultivated so soon after rains as the Kalmia and Cahaba soils and becomes hard during long, dry periods.

If drained, this soil is well suited to oats and corn. It is fairly well suited to cotton and soybeans and to dallisgrass, bermudagrass, tall fescue, bahiagrass, annual lespedeza, and crimson and white clovers grown for pasture. Yields are good, if fertilizer is added, but lime is also required for the best yields of most crops. If large amounts of fertilizer are added and sufficient organic matter is turned under, row crops can be grown on this soil every year. Use open ditches or tile drains to remove the excess surface water. The soil has a high site index for loblolly and slash pines. (Capability unit IIw-2; woodland group 10.)

Kalmia Series

The Kalmia soils are level to gently sloping and are well drained. They are deep soils that have formed in beds of unconsolidated sand and clay. The sand and clay consisted of alluvial materials washed from the Coastal Plain and mixed with some material washed from the Piedmont. Most of the acreage is on the second terraces along the Pee Dee and Lynches Rivers, but some areas are along Black Creek.

These soils occupy areas between the Huckabee soils, which are excessively drained, and the Flint, Wahee, and Izagora soils, which are moderately well drained to somewhat poorly drained. The original vegetation consisted mainly of longleaf and loblolly pines, red and white oaks, and dogwood, but it included some hickory. About 80 percent of the acreage is cultivated; the rest is in cutover pine, oak, and gum. These soils are among the most productive soils on river terraces in the county.

These soils occur near the Huckabee, Independence, Cahaba, Wahee, Leaf, and Myatt soils. They occupy lower positions than the Huckabee and Independence soils, which are excessively drained. They are at higher elevations and are better drained than the Wahee, Leaf, and Myatt soils. In contrast to the Cahaba soils, they have a yellowish rather than a reddish subsoil. The Kalmia soils have a thicker surface layer and a coarser textured subsoil than the Wahee soils.

The Kalmia soils have some concretions and some gravel on the surface, but not enough to hinder tillage. The surface soil ranges from 10 to 30 inches in thickness. The color of the subsoil ranges from pale yellow to reddish yellow; mottles occur at depths of 18 to 36 inches. In some places the subsoil has a texture of fine sandy loam.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. Permeability and the rate of infiltration are moderate. The water-holding capacity is low. The soils are acid.

Kalmia sandy loam, level phase (KsA) (0 to 2 percent slopes).—Most of this soil is used for cultivated crops. The following describes a profile in a moist, cultivated field, 5 miles south of Society Hill on the P. L. McColl farm:

A_p 0 to 8 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, crumb structure; very friable; slightly acid; 7 to 8 inches thick; abrupt, smooth lower boundary.

A_2 8 to 12 inches, light olive-gray (5Y 6/2) sandy loam weak, fine, crumb structure; very friable; medium acid 4 to 6 inches thick; clear, smooth lower boundary.

B_{21} 12 to 19 inches, pale-olive (5Y 6/4) sandy clay loam; weak, medium, subangular blocky structure; friable; thin, patchy clay films; medium acid; has concretions in places; 6 to 8 inches thick; gradual, smooth lower boundary.

B_{22} 19 to 35 inches, pale-olive (5Y 6/4) sandy clay loam; a few, medium, distinct mottles of dark yellowish brown (10YR 4/4); weak, medium, subangular blocky structure; friable; patchy clay films; medium acid; 15 to 20 inches thick; gradual, wavy lower boundary.

C 35 inches+, pale-olive (5Y 6/3) friable sandy clay loam mottled with light gray (5Y 7/1) and yellowish red (5YR 4/6).

Included in mapping are some areas occupied by colluvial soils and some areas occupied by soils that normally occur near this soil. The areas were too small to map separately.

Kalmia sandy loam, level phase, is well suited to cotton, corn, small grains, tobacco, soybeans, velvetbeans, and truck crops. It is also suited to bahiagrass and Coastal bermudagrass, grown with sericea lespedeza or crimson clover for hay or grazing. Good yields are obtained. If a leguminous cover crop is turned under each year and large amounts of fertilizer are added, row crops can be grown continuously. Adding lime will increase the yields of most crops except tobacco.

This soil is easy to till and can be tilled soon after rains. Added fertilizer does not leach out easily. The soil does not become hard during long, dry periods, and it can be grazed in most kinds of weather. It is suited to sprinkler irrigation.

The soil has a high site index for pine trees. Bicolor lespedeza can be planted along the borders of fields, in odd corners, and in openings in the woods to provide food and cover for wildlife. (Capability unit I–1; woodland group 2.)

Kalmia sandy loam, gently sloping phase (KsB) (2 to 6 percent slopes).—This soil has a profile similar to that of Kalmia sandy loam, level phase. It has stronger slopes, however, and more intensive practices are needed to prevent erosion. Tillage should be on the contour, and terracing, vegetated waterways, and other water-control practices must be used.

The soil is suited to the same crops as Kalmia sandy loam, level phase, but row crops should be grown only every other year. Apply lime and fertilizer as needed. Loblolly and slash pines grow well on this soil. There are some good sites for farm ponds. (Capability unit IIe–1; woodland group 2.)

Kalmia loamy sand, level thick surface phase (KaA) (0 to 2 percent slopes).—This soil is coarser textured throughout than Kalmia sandy loam, level phase, and its surface layer is 18 to 30 inches thick. The soil is slightly droughty.

This soil is well suited to tobacco, sweetpotatoes, watermelons, crotalaria, and velvetbeans, and to Coastal bermudagrass, bahiagrass, and sericea lespedeza grown for hay and grazing. It is fairly well suited to cotton, corn, peanuts, and oats. Yields are lower than those obtained on Kalmia sandy loam, level phase. Close-growing crops should be grown every other year. Adding large amounts of fertilizer and organic matter will help to maintain yields, to decrease leaching, and to prevent wind erosion. Loblolly and slash pines grow well on this soil. (Capability unit IIs–1; woodland group 9.)

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Kalmia loamy sand, gently sloping thick surface phase (KaB) (2 to 6 percent slopes).—This soil has stronger slopes than Kalmia sandy loam, level phase. It is also coarser textured throughout and has a surface soil that is 18 to 30 inches thick. This soil is likely to be eroded by water.

This soil is well suited to tobacco, sweetpotatoes, watermelons, velvetbeans, and soybeans. It is also well suited to Coastal bermudagrass, bahiagrass, and sericea lespedeza grown for hay and grazing. The soil is fairly well suited to cotton, corn, peanuts, and oats. Yields are lower than on Kalmia sandy loam, level phase. Large amounts of fertilizer and organic matter must be added to maintain yields. Grow row crops only every other year. Till on the contour and use terracing, vegetated waterways, and other water-control practices. Loblolly and slash pines grow well on this soil. (Capability unit IIs–1; woodland group 9.)

Klej Series

The Klej soils are level to nearly level and are somewhat poorly drained. They are deep soils that have formed in beds of unconsolidated sand and sandy clay. The soils occur on the flat middle Coastal Plain of Darlington County. The original vegetation was loblolly pine, blackgum, sweetgum, poplar, and maple. The soils are of minor extent. Much of the acreage is woodland made up of cutover pine and gum.

These soils occur near the Norfolk, Goldsboro, Lynchburg, Coxville, and Portsmouth soils. They are at about the same elevation as the Lynchburg soils and lie between the higher Norfolk and Goldsboro soils and the lower Coxville and Portsmouth soils. The Klej soils are similar to the Lynchburg soils in color and drainage, but they have a more friable subsoil and are coarser textured throughout. They are not so well drained as the Norfolk and Goldsboro soils and are more friable and more mottled. The Klej soils have a more friable subsoil than the Coxville and Portsmouth soils and are better drained.

The surface layer of the Klej soils ranges from black to gray in color, depending upon the content of organic matter. The subsoil ranges in texture from loamy sand to sand, and the color, from brown to grayish brown. In most places the mottles in the subsoil are light gray and yellowish brown.

The soils are medium in content of organic matter and are low in their natural supply of plant nutrients. They have a low water-holding capacity. The soils are acid. Only one soil of this series, Klej loamy sand, is mapped in this county.

Klej loamy sand (Ky) (0 to 2 percent slopes).—Most of this soil occurs near Hartsville. The following describes a profile in a moist, cultivated field, 4 miles east of Hartsville on the Coker seed farm:

A_p 0 to 8 inches, black (10YR 2/1) loamy sand; very friable; weak, fine, crumb structure; medium content of organic matter; medium acid; 7 to 8 inches thick; abrupt, smooth lower boundary.

A_2 8 to 26 inches, pale-brown (10YR 6/3) loamy sand; common, fine, faint mottles of yellowish brown (10YR 5/8); very friable; weak, fine, crumb structure; medium acid; 16 to 18 inches thick; clear, smooth lower boundary.

B_2 26 to 38 inches, brown (10YR 5/3) loamy sand; common, fine, faint mottles of yellowish brown (10YR 5/8); fri-

able; weak, fine, subangular blocky structure; strongly acid; 12 to 16 inches thick; clear, wavy lower boundary.

C 38 inches+, very pale brown (10 YR 8/3) loose sand; a few, fine, faint mottles of yellow (10YR 7/8).

In some areas the surface layer is fine sandy loam.

Klej loamy sand must be drained before it can be used for crops or pasture. Tile drains or open ditches can be used to remove the excess surface water. Maintaining open ditches is difficult, however, because of the sandy subsoil.

If drained, this soil is fairly well suited to truck crops, corn, soybeans, oats, crotalaria, and velvetbeans. It is also fairly well suited to bermudagrass, dallisgrass, bahiagrass, whiteclover, and annual lespedeza. Large amounts of fertilizer must be applied frequently to obtain good yields. If adequate fertilizer is added and large amounts of crop residues are turned under, row crops can be grown every year. Most crops require lime. Loblolly and slash pines grow fairly well on this soil. (Capability unit IIIw–1; woodland group 11.)

Lakeland Series

The soils of the Lakeland series are level to strongly sloping and are excessively drained. They have formed in thick beds of unconsolidated sand on the uplands of the Coastal Plain. The soils are widely distributed throughout the county. The largest acreage is in the northern and northwestern parts of the county and near the edges of the terraces along the Pee Dee River. The original vegetation was longleaf pine with an understory of scrub oak. About 80 percent of the acreage is now in cutover blackjack and turkey oaks with a few scattered pines. The more nearly level areas are used to grow cultivated crops, but yields are low.

These soils occur near the Eustis, Vaucluse, Gilead, Plummer, Rutlege, Norfolk, and Ruston soils. They are similar to the Eustis soils, but their subsoil is yellowish rather than reddish. In contrast to the Vaucluse and Gilead soils, the Lakeland soils have a sandy subsoil and lack the compacted layer that occurs in those soils in many places. They are coarser textured throughout than the Ruston and Norfolk soils, and they have a lower natural supply of plant nutrients. The Lakeland soils lack the dark-colored, organic surface layer that is typical of the Plummer and Rutlege soils, which are poorly drained.

The surface layer of the Lakeland soils ranges from dark gray to light gray in color, depending upon the content of organic matter. The subsoil ranges from 2½ to several feet in thickness (fig. 11) and from pale yellow to yellowish brown in color. It has a texture of sand to loamy sand.

These soils have a very low content of organic matter and a low natural supply of plant nutrients. Permeability is rapid. The water-holding capacity is low. The soils are acid.

Lakeland sand, gently sloping phase (LaB) (2 to 6 percent slopes).—Much of this soil is used for crops. The following describes a typical profile:

A_1 0 to 2 inches, dark-gray (2.5Y 4/0) sand; weak, fine, crumb structure; very friable; many roots; strongly acid; moderate content of organic matter; 2 to 3 inches thick; clear, smooth lower boundary.

A_2 2 to 7 inches, grayish-brown (2.5Y 5/2), loose sand; structureless; many roots; medium acid; 5 to 7 inches thick; gradual, wavy lower boundary.

B_1 7 to 38 inches, light yellowish-brown (2.5Y 6/4), loose sand; a few, fine, faint mottles of brownish yellow (10YR 6/6) and light gray (10YR 7/2); structureless; many roots; medium acid; 30 to 32 inches thick; abrupt, wavy lower boundary.

B_2 38 to 54 inches, yellowish-brown (10YR 5/6), loose, loamy sand; structureless; a few roots; medium acid; 14 to 20 inches thick; abrupt, wavy lower boundary.

C 54 inches+, very pale brown (10YR 7/4), loose sand; structureless; in many places contains streaks or strata of yellowish-red loamy sand.

In some areas the surface layer is fine sand. Also included are some areas consisting of soils that normally occur near this soil, some areas of colluvial soils, and some areas that are wet and seepy. These were all too small to map separately.

Moderate amounts of organic matter accumulate in Lakeland sand, gently sloping phase, under forest. The organic matter and fertilizer that have been added leach out quickly, however, when the soil is cultivated. The soil can be cultivated soon after rains and does not become hard when dry.

Watermelons, peaches, corn, cowpeas, crotalaria, rye, velvetbeans, and sericea lespedeza are the principal crops. Bahiagrass and Coastal bermudagrass are grown if it is necessary to use the soil for grazing. If large amounts of organic matter are added and fertilizer is applied frequently, crops make fair yields.

Planting windbreaks at right angles to the prevailing winds will help to control wind erosion in large fields. If scrub oaks are controlled, pines grow fairly well. (Capability unit IIIs–2; woodland group 7.)

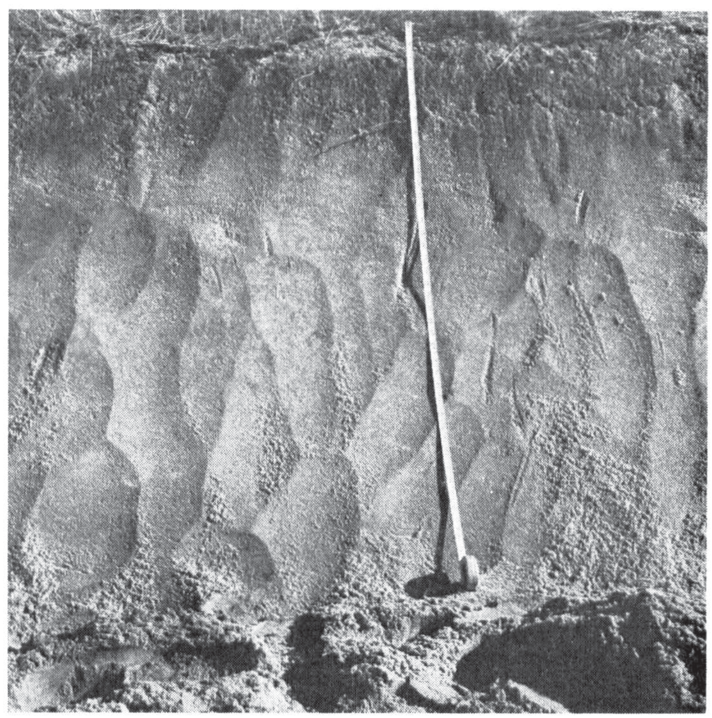

Figure 11.—A typical profile of Lakeland sand, gently sloping phase; depth shown, approximately 41 inches.

Lakeland sand, sloping phase (LaC) (6 to 10 percent slopes).—This soil consists mainly of cutover woodland. It has steeper slopes than Lakeland sand, gently sloping phase, and it is more likely to be eroded by runoff water.

Watermelons, crotalaria, rye, cowpeas, and corn are the principal crops. Coastal bermudagrass or sericea lespedeza are grown for pasture. If the soil is used for row crops, close-growing crops should be grown 3 out of 4 years. For crops and pastures to maintain fair yields, practices must be applied intensively to control erosion. (Capability unit IVs–1; woodland group 13.)

Lakeland sand, strongly sloping phase (LaD) (10 to 15 percent slopes).—This soil is steeper than Lakeland sand, gently sloping phase, and it is coarser textured throughout. In addition, less organic matter accumulates in areas that are under forest and the soil is more droughty. The areas generally occur in narrow bands that are parallel to the streams that drain the Sand Hills. Little of the soil is cultivated. Sericea lespedeza can be grown for hay, but the soil is best used for pine trees. (Capability unit VIIs–1; woodland group 15.)

Lakeland sand, level shallow phase (LkA) (0 to 2 percent slopes).—This soil, unlike Lakeland sand, gently sloping phase, is level and has a thinner B horizon. Otherwise, the two soils are similar. This soil generally occurs in small areas, and most of it is used for crops.

This soil has a sandy texture, but a layer, ranging in texture from sandy loam to sandy clay loam, occurs at depths of 30 to 36 inches. This soil has a higher natural supply of plant nutrients, requires less fertilizer, and holds more available moisture than Lakeland sand, gently sloping phase. Consequently, it is more productive. The soil is not likely to be eroded by water, but in large fields there is risk of wind erosion.

This soil is suited to watermelons, sweetpotatoes, peaches, crotalaria, and velvetbeans. It is fairly well suited to cotton, tobacco, corn, peanuts, and oats. It is suited to sericea lespedeza grown for hay and grazing and to bahiagrass and Coastal bermudagrass grown for pasture. Pine trees also grow well on this soil. (Capability unit IIs–2; woodland group 7.)

Lakeland sand, sloping shallow phase (LkC) (6 to 10 percent slopes).—This soil has a profile similar to that of Lakeland sand, gently sloping phase, but it has stronger slopes and is more likely to erode. The B horizon ranges from 18 to 36 inches in thickness.

Crotalaria, rye, watermelons, cowpeas, and corn are grown on this soil. The soil needs to be kept in close-growing crops 3 out of 4 years. Yields are lower than on Lakeland sand, gently sloping phase, even though similar amounts of fertilizer are added and practices are used to conserve the soil. This soil is probably better used for grazing or for growing hay crops than for other purposes, and sericea lespedeza is a good plant to seed. If scrub oaks are controlled, pine trees will grow fairly well. (Capability unit IVs–1; woodland group 7.)

Lakeland sand, gently sloping shallow phase (LkB) (2 to 6 percent slopes).—This soil has a profile similar to that of Lakeland sand, gently sloping phase, but it has a thinner B horizon that ranges from 30 to 36 inches in thickness. This soil generally occurs in small areas, and most of it is cultivated.

This soil is suited to cotton, crotalaria, watermelons, rye, oats, corn, peaches, peanuts, and cowpeas. Sericea lespedeza, grown for hay and grazing, makes good yields; bahiagrass and Coastal bermudagrass are grown for pasture. Crops make fair yields, if fertilizer is applied frequently and water-control practices are used. In large fields there is risk of wind erosion. Pine trees grow fairly well on this soil. (Capability unit IIIs–1; woodland group 7.)

Lakewood Series

The Lakewood series is made up of deep, loose, sandy soils that are excessively drained. From a distance the soils appear to be white, but, when examined closely, they have a salt-and-pepper appearance. These soils have formed in beds of unconsolidated sand. They occur around some of the larger Carolina bays and along the Lynches River. The original vegetation was mainly longleaf pine with an understory of scrub, blackjack, turkey, and willow oaks. The present vegetation consists of scrub oak and a scattering of pines.

These soils occur near the Lakeland, Plummer, Rutlege, and Okenee soils. In contrast to the Lakeland soils, the Lakewood soils have a cemented organic layer and a lower natural supply of plant nutrients. They differ from the Plummer, Rutlege, and Okenee soils in having less organic matter in the surface soil. In addition, the Plummer, Rutlege, and Okenee soils are poorly drained.

The Lakewood soils are level to gently sloping. Depth to the cemented layer ranges from 12 to 24 inches, and in some places the cemented layer is absent.

These soils are low in content of organic matter and in their natural supply of plant nutrients. Permeability is very rapid, and the water-holding capacity is very low. The soils are strongly acid. Only one soil of this series, Lakewood sand, gently sloping phase, is mapped in this county.

Lakewood sand, gently sloping phase (LwB) (2 to 6 percent slopes).—This soil occupies areas that have not been cultivated. The following describes a profile in a moist, cutover woodland, 1 mile southeast of Kellytown along the edge of a large bay:

A_1 0 to 4 inches, very dark gray (N 3/) sand; weak, fine, crumb structure; very friable; strongly acid; moderate content of organic matter; 3 to 5 inches thick; clear, smooth lower boundary.

A_2 4 to 16 inches, white (5Y 8/1) sand; weak, fine, crumb structure; very friable; strongly acid; low content of organic matter; 12 to 24 inches thick; clear, wavy lower boundary.

B_{21} 16 to 17 inches, very dusky red (10R 2/2) sand; structureless; weakly cemented; a few, small, soft concretions; moderate content of organic matter; ½ to 1 inch thick; abrupt, wavy lower boundary.

B_{22} 17 to 36 inches, dark-brown (7.5YR 4/2) sand; structureless; loose; strongly acid; a few, soft, iron concretions; low content of organic matter; 20 to 30 inches thick; gradual, wavy lower boundary.

C 36 inches+, pale-yellow (2.5Y 7/4) sand; structureless; loose.

This soil is not suited to cultivation. Except for the topmost 2 or 3 inches of the surface layer, the soil contains little organic matter. Added fertilizer soon leaches out. The soil should be kept in trees and protected from

fire and grazing. Where feasible, pine trees can be established by controlling scrub oak so that the pine trees can reseed naturally. (Capability unit VIIs-1; woodland group 16.)

Leaf Series

The soils of the Leaf series are level and deep and are poorly drained. They have formed in fine-textured alluvium washed from the Coastal Plain. These soils occur on the second terraces of Black Creek and the Pee Dee and Lynches Rivers. Some large, flat areas occur at the lowest elevation on the terraces. Others are in drainageways that receive runoff from these terraces. The original vegetation was mainly blackgum, sweetgum, red and white oaks, and poplar, but it included some loblolly pine. About 95 percent of the acreage is in cutover hardwoods and pines. The rest is used for cultivated crops or pasture.

These soils occur near the Kalmia, Flint, Wahee, and Myatt soils. They are not so well drained as the Kalmia, Flint, and Wahee soils. They have a thinner surface soil and a less friable subsoil than the Kalmia soils, and they occupy lower positions. In contrast to the Myatt soils, the Leaf soils have a tough, fine-textured subsoil that is sticky and plastic rather than sandy and nonsticky.

The surface layer of the Leaf soils ranges from 4 to 12 inches in thickness. It ranges from black to light gray in color, depending upon the content of organic matter. The subsoil ranges in texture from sandy clay loam to fine sandy clay. In many places it is mottled with yellowish brown rather than red.

These soils are medium in content of organic matter and in their natural supply of plant nutrients. They have very slow surface runoff and slow internal drainage. The rate of infiltration is slow, and the water-holding capacity is moderate. The soils are medium acid to strongly acid. Only one soil of this series, Leaf fine sandy loam, is mapped in the county.

Leaf fine sandy loam (Ls) (0 to 2 percent slopes).—Most of this soil is on the second terraces of the Pee Dee River. The following describes a profile in a moist woodland, 5 miles south of Society Hill on the P. L. McColl farm:

A_0 1 to 0 inch of forest litter.

A_1 0 to 5 inches, grayish-brown (2.5Y 5/2) fine sandy loam; weak, fine, crumb structure; very friable; medium acid; 4 to 5 inches thick; clear, smooth lower boundary.

B_1 5 to 8 inches, light olive-gray (5Y 6/2) fine sandy clay loam; has common, medium, distinct mottles of yellowish brown (10YR 5/8); weak, fine, subangular blocky structure; friable; strongly acid; 3 to 4 inches thick; clear, smooth lower boundary.

B_{2g} 8 to 30 inches, light olive-gray (5Y 6/2) fine sandy clay; a few, medium, prominent mottles of red (2.5YR 4/8) and common, medium, distinct mottles of yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; friable; continuous clay films; strongly acid; 20 to 24 inches thick; gradual, wavy lower boundary.

C_g 30 inches+, gray (2.5Y 5/0) clay mottled with light olive brown (2.5Y 5/6) and dusky red (10R 3/4).

Included in mapping are some areas of Myatt soils that were too small to map separately. In some areas the surface layer is sandy loam.

Leaf fine sandy loam must be drained before it can be used for crops or pasture. In many places, however, it is difficult to locate suitable outlets for drainage. This soil cannot be cultivated so soon after rains as the nearby Kalmia and Wahee soils. In wet weather the soil puddles and packs, if livestock are allowed to graze; in dry weather it tends to become hard.

If drained, this soil is suited to truck crops, corn, soybeans, and oats. It is better suited to pasture than to cultivated crops, however, and dallisgrass, bermudagrass, tall fescue, whiteclover, and annual lespedeza are the best plants to seed. Yields of row crops and small grains are fair, but pastures produce good yields. If fertilizer is added and large amounts of crop residues are turned under, row crops can be grown every year. A cropping system that includes cover crops and crops grown as green manure will add large amounts of organic matter to the soil. It will also help to keep the soil from becoming hard when dry. Lime is required for high yields of most crops.

This soil is best used as woodland. Loblolly, slash, and pond pines are the trees that grow the best. It is best to seed plants each year for use of wildlife.

This soil provides some good sites for dug irrigation pits. Each site must be checked, however, to determine the depth to water-bearing sand. (Capability unit IIIw-2; woodland group 3.)

Local Alluvial Land

Local alluvial land (Lo).- This miscellaneous land type is made up of alluvial and colluvial materials. Generally, the materials were washed from Norfolk, Ruston, Marlboro, Gilead, Lakeland, and Eustis soils, which are on the surrounding uplands. Local alluvial land is level and occurs in slight depressions or at the heads of small drainageways. It is on uplands throughout the county in areas 2 to 5 acres in size. Almost all of it is cultivated.

Most of Local alluvial land is moderately well drained, but it ranges in drainage from somewhat poorly drained to well drained. The surface layer ranges from loam to loamy sand in texture and from dark gray to grayish brown in color. Depth to the underlying material ranges from 18 to 40 inches.

Local alluvial land has a medium content of organic matter and a high natural supply of plant nutrients. It is best used for row crops, hay crops, or pasture, but it must be drained.

This miscellaneous land type is best suited to truck crops, corn, small grains, soybeans, and tobacco. It is also suited to cotton, but, generally, this crop makes a rank growth and is damaged by insects and disease. Bermudagrass, bahiagrass, whiteclover, and annual lespedeza are the best plants to seed for hay or pasture. Ditches or tile drains can be used to remove excess water. Terraces or diversion channels will give protection from runoff water from the higher lying areas.

Loblolly and slash pines grow well on this land type. If this soil is drained, bicolor lespedeza can be planted to provide food and cover for wildlife. (Capability unit IIw-1; woodland group 1.)

Lynchburg Series

The Lynchburg soils are level or nearly level and are somewhat poorly drained. They are deep soils that have formed in beds of unconsolidated sandy materials. Most

of the acreage is near Lamar, Hartsville, and Syracuse. The original vegetation consisted of loblolly and longleaf pines, red oak, blackgum, maple, sweetgum, and dogwood. Much of the acreage is now cultivated and is highly productive.

These soils are near the Norfolk, Goldsboro, Dunbar, Rains, Klej, Plummer, and Coxville soils. They occur at about the same elevation as the Dunbar and Rains soils but in lower positions than the Norfolk and Goldsboro soils. The Lynchburg soils are not so well drained as the Norfolk and Goldsboro soils, but their drainage is similar to that of the Dunbar soils. Their subsoil is more mottled, but in texture and friability is similar to those of the Norfolk and Goldsboro soils. Their subsoil is sandier and more friable than that of the Dunbar soils; it is less gray but in texture is similar to that of the Rains soils, and it is not so sandy as that of the Klej soils. The Lynchburg soils have more prominent mottles than the Rains, Plummer, and Coxville soils, and they are coarser textured throughout than the Coxville soils.

The surface layer of the Lynchburg soils ranges from black to light gray. It is 6 to 15 inches thick. The subsoil ranges from sandy loam to sandy clay loam. The mottling in the soils varies in amount and color. In some places the soils have only a few, faint mottles; in other nearby areas the soils have many, large, prominent mottles. The mottles range from yellow to red in color. In some places red mottles occur in the upper part of the subsoil, and in others they occur lower in the profile, near the parent material.

The soils are medium in content of organic matter and in their natural supply of plant nutrients. Permeability is moderate, and the rate of infiltration is moderate to high. The soils are acid. Only one soil of this series, Lynchburg sandy loam, is mapped in this county.

Lynchburg sandy loam (Ly) (0 to 2 percent slopes).—This soil occurs in large areas, many of which have recently been cleared, drained, and cultivated. The following describes a profile in a moist, cutover area under pine, 1 mile southwest of Lamar and 200 yards to the left of U.S. Highway No. 401:

A_1 0 to 7 inches, grayish-brown (2.5Y 5/2) sandy loam; weak, fine, crumb structure; very friable; medium acid; 6 to 9 inches thick; clear, wavy lower boundary.

B_1 7 to 13 inches, light olive-brown (2.5Y 5/4) sandy loam; a few, fine, faint mottles of yellowish brown (10YR 5/6); weak, fine, crumb to weak, medium, subangular blocky structure; strongly acid; 5 to 8 inches thick; clear, wavy lower boundary.

B_2 13 to 22 inches, gray (5Y 5/1) sandy clay loam; common, medium, distinct mottles of yellowish brown (10YR 5/6); weak, medium, subangular blocky structure; friable; slightly plastic and sticky when wet; strongly acid; 9 to 14 inches thick; gradual, wavy lower boundary.

B_3 22 to 34 inches, gray (2.5Y 5/0) sandy clay loam; common, coarse, distinct mottles of reddish yellow (7.5YR 6/8); weak, medium, subangular blocky to angular blocky structure; friable; slightly plastic when wet; strongly acid; 10 to 15 inches thick; gradual, wavy lower boundary.

C 34 inches+, gray sandy clay and sandy clay loam with yellowish-brown, red, and reddish-yellow mottles; massive to weak, subangular blocky structure; plastic and slightly sticky when wet.

Included with this soil in mapping are some areas of Klej and Rains soils that were too small to map separately. In some areas the surface layer is fine sandy loam.

Lynchburg sandy loam is suited to irrigation. It must be drained before it can be cultivated or used for pasture. Satisfactory drainage can be provided by tile drains. Because of the sandy subsoil, the sides of open ditches and dug irrigation pits tend to fall in unless the sides are sloped. Logging is difficult in wet weather. This soil is easy to cultivate but cannot be cultivated so soon after rains as the Norfolk soils.

If adequately drained and well managed otherwise, these soils are productive. They are well suited to corn, small grains, truck crops, soybeans, and vetch, and good yields of cotton and tobacco are obtained. The soil is suited to dallisgrass, bahiagrass, bermudagrass, whiteclover, annual lespedeza, and reseeding crimson clover grown for hay and pasture. Tall fescue grows well, but it must be well managed and should not be overgrazed. If adequate fertilizer is added and large amounts of organic matter are turned under, row crops can be grown every year. Lime is required for most crops except tobacco.

This soil is best used for crops and pasture, but it is also suited to loblolly and slash pines. If it is drained, the higher lying areas can be planted to bicolor lespedeza to provide food and shelter for wildlife. It is best, however, to plant annual lespedeza for this purpose. (Capability unit IIw-2; woodland group 10.)

Marlboro Series

The soils of the Marlboro series are level to gently sloping and are well drained. They are deep soils that have formed in thick beds of unconsolidated sand and clay on uplands in the middle and lower parts of the Coastal Plain. They occur mainly in the central and southern parts of the county. The original vegetation was mainly loblolly pine and red and white oaks. It included some hickory and an understory of shrubs and native grasses. Little of the acreage is now wooded.

The Marlboro soils occur near the Norfolk, Ruston, Dunbar, Goldsboro, and Coxville soils. Their surface layer is thinner than the surface layers of the Norfolk and Ruston soils, and the boundary between the A and B horizons is more abrupt. In addition, the subsoil is finer textured than those of the Norfolk and Ruston soils and is yellower than that of the Ruston soils. The Marlboro soils are better drained than the Dunbar, Goldsboro, and Coxville soils.

The surface layer of the Marlboro soils ranges from dark gray to light gray in color, depending on the content of organic matter, and is 6 to 12 inches thick. The number and size of the concretions in the profile vary, and in some places they are absent. Depth to the underlying material ranges from about 27 to 40 inches.

These soils are medium in content of organic matter and are high in their natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. The soils are slightly acid to medium acid.

Marlboro sandy loam, level phase (MaA) (0 to 2 percent slopes).—This soil occurs in broad areas, some of which are as large as 75 acres in size. Most of the acre-

age is used to grow row crops. The following describes a profile in a moist, cultivated field:

A_p 0 to 6 inches, grayish-brown (2.5Y 5/2), light sandy loam; weak, fine, crumb structure; very friable; many roots; slightly acid; has a medium content of organic matter; a few dark-brown iron concretions on the surface and throughout this layer; 5 to 8 inches thick; abrupt, smooth lower boundary.

A_2 6 to 9 inches, light yellowish-brown (2.5Y 6/4), light sandy loam; weak, fine, crumb structure; very friable; many roots; slightly acid; has a low content of organic matter; a few dark-brown iron concretions; 3 to 4 inches thick; abrupt, smooth lower boundary.

B_1 9 to 12 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; friable; slightly sticky and plastic when wet; many roots; medium acid; low content of organic matter; many iron concretions; 3 to 4 inches thick; clear, smooth lower boundary.

B_2 12 to 27 inches, yellowish-brown (10YR 5/8) sandy clay; weak, medium, subangular blocky structure; friable when moist; sticky and plastic when wet, and hard and brittle when dry; many roots; medium acid; low content of organic matter; many dark-brown to reddish-brown concretions; 15 to 20 inches thick; gradual, wavy lower boundary.

C 27 inches+, brownish-yellow (10YR 6/6) sandy clay loam to sandy clay; many, medium, distinct, red (2.5YR 4/6) mottles.

Included with this soil in mapping are some areas of Norfolk soils that were too small to map separately. In some areas the surface layer is loamy sand.

Marlboro sandy loam, level phase, is well suited to cotton, tobacco, corn, small grains, soybeans, peanuts, sweetpotatoes, common lespedeza, and certain truck crops. It is also well suited to bahiagrass, Coastal bermudagrass, and sericea lespedeza grown for pasture. In some fields good yields of cotton are obtained, even though the soils have been used for this crop for more than 60 years.

This soil responds well to management. Adding fertilizer and irrigating will improve yields of most crops. In some large fields stripcropping and the use of windbreaks are needed to control soil blowing. The soil is well suited to loblolly pine. (Capability unit I–2; woodland group 2.)

Marlboro sandy loam, gently sloping phase (MaB) (2 to 6 percent slopes).—The profile of this soil is similar to that of Marlboro sandy loam, level phase, but this soil has stronger slopes. Consequently, it is more likely to be eroded by water. There is little risk of wind erosion, however, because the areas are generally small.

This soil is suited to the same crops as Marlboro sandy loam, level phase, and, if similar amounts of fertilizer are added, yields are about the same. Close-growing crops need to be planted every other year to maintain the content of organic matter and to help prevent erosion. In addition, it is necessary to use terracing, to grass waterways, and to apply other water-control practices. (Capability unit IIe–2; woodland group 2.)

Marsh

Marsh (Mr).—This miscellaneous land type is all in the eastern part of the county. It consists of fresh water marsh that surrounds a large artesian well on Witherspoon Island. Water stands on this area at all times. The vegetation consists of plants, other than trees, that tolerate water. (Capability unit VIIw–1.)

Mixed Alluvial Land

Mixed alluvial land (Mx).—This miscellaneous land type is level and is very poorly drained to somewhat poorly drained. It is made up of various kinds of local alluvium. Mixed alluvial land occurs throughout Darlington County along the smaller streams that drain the county. The streams overflow frequently and flood the areas. The original vegetation was mainly water oaks, blackgum, sweetgum, cypress, and juniper but included some maple and some gallberry and bayberry bushes. All of the acreage is in timber, much of which has been cut over.

The color of the soil materials in this land type ranges from black to light gray, and the texture, from sand to silty clay. Generally, the content of organic matter is high. Because of the frequent flooding of the areas and the difficulty of draining them, it is best to keep them in trees. (Capability unit VIIw–1; woodland group 17.)

Myatt Series

The soils of the Myatt series are deep and level and are poorly drained. They have formed in beds of unconsolidated sand and clay along the larger streams of the county. The soils occupy the lowest positions on the terraces. Generally, they are in drainageways that receive runoff from the terraces. The original vegetation was mainly blackgum, sweetgum, tupelo-gum, maple, and cypress, but it included a few oaks and a scattering of loblolly and pond pines. Now, most of the acreage is in cutover timber, and less than 10 percent is cultivated.

These soils occur near the Independence, Kalmia, Flint, Wahee, Leaf, Okenee, and Izagora soils. They are finer textured than the Independence soils, which are excessively drained. They occupy lower positions than the Kalmia, Flint, and Wahee soils and are more friable and more poorly drained than the Kalmia soils. In contrast to the Flint and Wahee soils, they have a gray subsoil rather than a subsoil that is mottled brown and yellow. Their subsoil is more friable than that of the Leaf soils and lacks the red mottling.

The Myatt soils occur at about the same elevations as the Okenee and Izagora soils. They have a thinner organic surface layer than the Okenee soils. Their suboil, in texture and consistence, is similar to that of the Izagora soils, but it is gray and has distinct mottles rather than being yellowish brown, with faint mottles in the upper part.

The surface layer of the Myatt soils ranges in color from black to light gray, depending upon the content of organic matter. It ranges from 6 to 12 inches in thickness. The subsoil ranges from sandy loam to sandy clay loam in texture and from 20 to 30 inches in thickness. In some places the subsoil is free of mottling.

These soils are low in organic matter and in their natural supply of plant nutrients. Surface runoff is slow. The soils are strongly acid. Only one soil of this series, Myatt sandy loam, is mapped in this county.

Myatt sandy loam (My) (0 to 2 percent slopes).—Most of this soil occurs along Black Creek and along the Pee Dee and Lynches Rivers. The following describes a pro-

file in a moist woodland, 4 miles south of Society Hill on the T. E. Coxe farm:

A_0 1 to 0 inch of forest litter.

A_1 0 to 8 inches, dark olive-gray (5Y 3/2) sandy loam; weak, fine, crumb structure; very friable; strongly acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_{1g} 8 to 18 inches, gray (5Y 6/1) sandy loam; a few, fine, distinct mottles of dark yellowish brown (10YR 4/4); weak, fine, crumb structure; very friable; many fine pores; strongly acid; 9 to 12 inches thick; clear, smooth lower boundary.

B_{2g} 18 to 32 inches, gray (5Y 5/1) sandy clay loam; a few, fine, distinct mottles of dark yellowish brown (10YR 4/4); weak, medium, subangular blocky structure; friable; strongly acid; 14 to 18 inches thick; clear, wavy lower boundary.

C_g 32 inches+, light-gray (5Y 7/1) sand; structureless.

Included with this soil in mapping are some areas of Okenee soils that were too small to map separately. In some small areas the surface layer is fine sandy loam.

Myatt sandy loam requires drainage, but it occurs in areas that are hard to drain. Furthermore, because of its friable subsoil, the sides of open ditches fail to stand up well. In areas that have been drained for crops or pasture, fertilizer soon leaches out.

This soil is not suited to cultivation, and most of it is in hardwoods. The areas are wet. Clearing them for pasture does not pay. Some small areas, once cleared, now have a cover of carpetgrass. Adding fertilizer will improve the stand of carpetgrass for grazing.

This soil is best used as woodland. It is well suited to loblolly, slash, and pond pines. There are some desirable sites for ponds, but each site must be checked carefully. (Capability unit Vw-2; woodland group 5.)

Norfolk Series

The soils of the Norfolk series are level to strongly sloping and are well drained. They are deep soils that have formed in beds of unconsolidated sand and clay. The soils occur on uplands throughout the county. They occupy the largest acreage of any of the soils, and about 95 percent of the acreage is cultivated. These soils are important for growing tobacco; they are used to grow most of the tobacco produced in the county. The original vegetation was mainly longleaf and loblolly pines, but it included some white and red oaks. Now, longleaf and loblolly pines grow on the areas that are not cultivated.

These soils occur near the Ruston, Marlboro, Lakeland, Dunbar, Goldsboro, Lynchburg, Coxville, and Portsmouth soils. The Norfolk soils are similar to the Ruston soils, but their subsoil is yellow rather than yellowish red or red. Their subsoil is coarser textured than that of the Marlboro soils.

The Norfolk soils are finer textured throughout and are more productive than the Lakeland soils, which are excessively drained. They are better drained than the Goldsboro, Dunbar, Lynchburg, Coxville, and Portsmouth soils, and they lack the thick organic surface layer of the Portsmouth soils.

The surface layer of the Norfolk soils ranges from dark gray to brownish gray in color, depending upon the content of organic matter. Its texture ranges from fine sandy loam to loamy sand. The subsoil ranges from sandy loam to sandy clay loam in texture, and from yellow to yellowish brown in color. It ranges from 30 to 44 inches in thickness.

These soils are medium in content of organic matter and have a high natural content of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. Surface runoff and internal drainage are medium. The soils are medium acid.

Norfolk sandy loam, level phase (NsA) (0 to 2 percent slopes).—This soil occupies level or nearly level areas where little erosion has occurred. The following describes a profile in a moist, cultivated area, a quarter of a mile north of the junction of State Highways 34 and 151 and 6 miles west of Darlington:

A_p 0 to 7 inches, grayish-brown (10YR 5/2), light sandy loam; weak, fine, crumb structure; very friable; a few concretions on the surface; many roots; neutral; 6 to 8 inches thick; abrupt, smooth lower boundary.

A_2 7 to 13 inches, pale-brown (10YR 6/3), light sandy loam; weak, fine, crumb structure; very friable; medium acid; 6 to 10 inches thick; clear, smooth lower boundary in most places, but in some places some material from the B_1 horizon is mixed with the material in this layer.

B_1 13 to 16 inches, brownish-yellow (10YR 6/6), light sandy loam; weak, medium, subangular blocky structure; friable; in places some material from the A_2 horizon is mixed with material in this layer; many fine pores; strongly acid; 3 to 4 inches thick; clear, smooth lower boundary.

B_2 16 to 34 inches, yellowish-brown (10YR 5/6) sandy clay loam; friable; weak, medium, subangular blocky structure; a few, thin, patchy clay films; medium acid; 15 to 20 inches thick; gradual, smooth lower boundary.

B_3 34 to 44 inches, brownish-yellow (10YR 6/6) sandy clay loam; has common, medium, distinct mottles of yellowish red (5YR 5/8) and strong brown (7.5YR 5/6); the soil material making up the mottles is slightly compact and appears to be the beginning of soft concretions; friable; a few, thin clay skins; weak, medium, angular blocky and subangular blocky structure; slightly acid; 8 to 12 inches thick; gradual, smooth lower boundary.

C 44 inches+, brownish-yellow (10YR 6/8) sandy clay loam with strong-brown and yellowish-red mottles; the soil material making up the mottles is the beginning of concretions; the mottles and concretions, to depths of 5 feet or more, become more numerous with increasing depth; friable; massive.

Included with this soil in mapping are some areas of colluvial soils and some areas of soils that normally occur near the colluvial soils. These were too small to map separately.

Norfolk sandy loam, level phase, is easy to cultivate and can be cultivated soon after rains. It can be grazed during most kinds of weather that occur in the county. Crops on this soil respond well if fertilizer is added, and the fertilizer does not leach out readily. The soil requires water-control practices. It is suited to irrigation.

This soil is well suited to tobacco, cotton, corn, small grains, soybeans, truck crops, and other crops commonly grown in the county, and high yields are obtained. Bahiagrass and Coastal bermudagrass, grown with sericea lespedeza or crimson clover, are the best plants to seed for hay or grazing. Lime is required for high yields of most crops, except tobacco. If large amounts of fertilizer are added and a cover crop of legumes is turned under, row crops can be grown year after year. In large fields windbreaks should be planted at right angles to the prevailing winds to control erosion. The site index for loblolly pine is high. (Capability unit I-1; woodland group 2.)

Norfolk sandy loam, gently sloping phase (NsB) (2 to 6 percent slopes).—This soil is more sloping than Norfolk sandy loam, level phase, but the profiles of the two soils are similar.

If this soil is tilled on the contour and if adequate fertilizer is applied and cover crops are grown, it is suited to the crops generally grown in the county. Bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu are the best plants to seed for hay and pasture. Close-growing crops need to be grown every other year. The soil must be protected from erosion by wind and water. Terracing, establishing grassed waterways, and using other water-control practices will help to control runoff. If the soil is well managed otherwise, yields are similar to those obtained on Norfolk sandy loam, level phase.

This soil has a high site index for pine trees. Its best use, however, is for cultivated crops, hay crops, and pasture. (Capability unit IIe-1; woodland group 2.)

Norfolk sandy loam, sloping phase (NsC) (6 to 10 percent slopes).—This soil has a profile similar to that of Norfolk sandy loam, nearly level phase, but it has stronger slopes. Consequently, it needs more intensive practices to prevent erosion. The soil requires fertilizer and organic matter, and close-growing crops ought to be grown 2 out of 3 years. Terracing is desirable, and the outlets should be grassed; tillage needs to be on the contour.

Bahiagrass, Coastal bermudagrass, sericea lespedeza, kudzu, and crimson clover are the best plants to seed for hay and pasture. Loblolly and slash pines grow well on this soil. Some areas make good sites for fishponds. The soil provides excellent material for building dams. (Capability unit IIIe-1; woodland group 2.)

Norfolk sandy loam, level thin solum phase (NtA) (0 to 2 percent slopes).—This soil is similar to Norfolk sandy loam, level phase, but the lower part of the B horizon is slightly cemented at depths of 32 to 36 inches. All of the acreage is in the Sand Hills area of Darlington County. Most of the soil is in fields that are 25 to 200 acres in size.

This soil is suited to the same crops as Norfolk sandy loam, level phase. If management is similar, about the same yields are obtained. (Capability unit I-1; wood land group 9.)

Norfolk sandy loam, gently sloping thin solum phase (NtB) (2 to 6 percent slopes).—The B horizon of this soil is slightly cemented at depths of 32 to 36 inches, but, otherwise, the profile is similar to that of Norfolk sandy loam, level phase. In places the cemented layer retards the movement of water through the soil. All of this soil is in the Sand Hills area of Darlington County.

This soil is suited to the same crops as Norfolk sandy loam, level phase. It is also suited to bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu grown for hay and pasture. Yields are similar to those obtained on Norfolk sandy loam, level phase, if similar amounts of fertilizer are added and the areas are protected from erosion by water and wind.

This soil should be in close-growing crops every other year. Terracing, use of vegetated waterways, and other water-control practices are needed. In large fields windbreaks, planted at right angles to the prevailing winds, will help prevent wind erosion. This soil has a fairly high site index for pine. (Capability unit IIe-1; woodland group 9.)

Norfolk fine sandy loam, level phase (NfA) (0 to 2 percent slopes).—The profile of this soil is finer textured throughout than that of Norfolk sandy loam, level phase. Otherwise, the profiles of the two soils are similar. The soils are suited to the same crops. If similar management practices are used, about the same yields are obtained. This soil has a high site index for loblolly and slash pines, but it is best used for cultivated crops, hay crops, or pasture. (Capability unit I-1; woodland group 2.)

Norfolk fine sandy loam, gently sloping phase (NfB) (2 to 6 percent slopes).—This soil has stronger slopes than Norfolk sandy loam, level phase, and it is finer textured throughout. It is suited to the same crops, but tillage must be on the contour to prevent erosion. The soil is also suited to bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu grown for hay and pasture. Terracing, use of grassed waterways, and other water-control practices are needed on this soil. Loblolly and slash pines grow well, but the soil is best used for cultivated crops or pasture. (Capability unit IIe-1; woodland group 2.)

Norfolk loamy sand, level thick surface phase (NoA) (0 to 2 percent slopes).—This soil has a thicker surface layer than Norfolk sandy loam, level phase, and a somewhat sandier subsoil. Consequently, it is more droughty and is more likely to be eroded by wind. The surface layer is 18 to 30 inches thick.

This soil is suited to tobacco, sweetpotatoes, watermelons, crotalaria, velvetbeans, and soybeans. It is also suited to Coastal bermudagrass, bahiagrass, and sericea lespedeza grown for hay or pasture. The soil is only fairly well suited to cotton, corn, peanuts, and oats. Large amounts of organic matter and fertilizer are required to maintain good yields. They will also help to decrease leaching and to prevent wind erosion. In addition, the soil should be in close-growing crops at least half the time. Loblolly and slash pines grow well on this soil. (Capability unit IIs-1; woodland group 9.)

Norfolk loamy sand, gently sloping thick surface phase (NoB) (2 to 6 percent slopes).—This soil has stronger slopes than Norfolk sandy loam, level phase, and a thicker surface layer. It is more likely to become eroded, and plant nutrients leach out readily. The surface layer is 18 to 30 inches thick.

This soil is suited to the same crops as Norfolk sandy loam, level phase. Yields are lower, however, even though similar amounts of fertilizer are added. Tillage should be on the contour. In addition, terracing, the use of vegetated waterways, and other water-control practices are needed to prevent erosion. Coastal bermudagrass, bahiagrass, and sericea lespedeza are good crops to grow for hay and pasture on this soil. The soil is well suited to loblolly and slash pines. (Capability unit IIs-1; woodland group 9.)

Norfolk loamy sand, sloping thick surface phase (NoC) (6 to 10 percent slopes).—This soil has a sandy surface layer, 18 to 30 inches thick. It is slightly droughty, and added fertilizer leaches out quickly.

The soil is fairly well suited to sweetpotatoes, watermelons, cotton, corn, crotalaria, peanuts, oats, velvetbeans, and soybeans. It is well suited to Coastal bermudagrass,

bahiagrass, and sericea lespedeza grown for hay and pasture. Large amounts of fertilizer and organic matter are needed to maintain good yields; the yields are lower, however, than those obtained on Norfolk sandy loam, level phase, even though similar amounts of fertilizer are added. Terracing, use of vegetated waterways, and other water-control practices are needed to prevent erosion. The soil is well suited to loblolly and slash pines. (Capability unit IIIe-5; woodland group 9.)

Norfolk loamy sand, strongly sloping thick surface phase (NoD) (10 to 15 percent slopes).—This soil has a thicker surface layer than Norfolk sandy loam, level phase. In addition, the slopes are stronger and the subsoil is sandier. Consequently, this soil is not suited to continuous cultivation. The surface layer is 18 to 30 inches thick.

This soil is fairly well suited to cotton, corn, and oats. Kudzu, sericea lespedeza, bahiagrass, and Coastal bermudagrass are the best plants to seed for hay and pasture. If the soil is used for cultivated crops, grow these crops only 1 year out of 4 and plant them in contour strips alternating with sericea lespedeza, kudzu, or bahiagrass. The soil is fairly well suited to loblolly and slash pines. (Capability unit IVe-5; woodland group 9.)

Okenee Series

The Okenee series is made up of level, very poorly drained soils that have a black surface layer. The soils are deep and have formed in material washed from the Coastal Plain. They have lain in swampy or partly swampy areas long enough for large amounts of organic matter to have accumulated. The soils occur on the second terraces of Black Creek and the Pee Dee and Lynches Rivers. Generally, they are along the edges of the terraces, which are parallel to the stream, but are farther back from the stream than the other terrace soils.

The original vegetation was mainly blackgum, sweetgum, cypress, poplar, and water oak, but it included a scattering of loblolly and longleaf pines. Now, most of the acreage is in cutover timber. A small acreage has been drained to provide land for truck crops and pasture.

The Okenee soils occur near the Independence, Huckabee, Myatt, and Leaf soils. They have a higher content of organic matter than the Independence and Huckabee soils, which are excessively drained, and their subsoil is gray, rather than brown and yellow. They have a more friable subsoil and occur at lower elevations than the Leaf soils, and they have a thicker organic layer than the Myatt soils. The Leaf and Myatt soils are poorly drained.

The surface layer of the Okenee soils ranges from 8 to 20 inches in thickness. It is black and contains a large amount of organic matter. The subsoil ranges from 16 to 36 inches in thickness. Generally, the soils are underlain by gray sand, but in some places the substratum is sandy loam or sandy clay.

These soils have a high content of organic matter and are moderate in their natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. The soils are strongly acid. Only one soil of this series, Okenee loam, has been mapped in this county.

Okenee loam (Ok) (0 to 2 percent slopes).—Most of this soil occurs on the terraces of Black Creek and the Lynches River, but a small acreage occurs along the Pee Dee River. The following describes a profile in a moist, cutover woodland, 3½ miles southwest of Lamar and ½ mile south of U.S. Highway 401 on the W. P. Scarborough farm:

A_0 1 to 0 inch of forest litter.
A_1 0 to 8 inches, black (N 2/) loam; weak, fine, crumb structure; very friable; strongly acid; 7 to 9 inches thick; clear, smooth lower boundary.
A_2 8 to 13 inches, dark-gray (N 4/) sandy loam; weak, fine, crumb structure; very friable; strongly acid; 4 to 7 inches thick; gradual, smooth lower boundary.
B_{2g} 13 to 42 inches, gray (5Y 5/1) sandy clay loam; weak, medium, subangular blocky structure; friable; many pores and root holes; strongly acid; 28 to 30 inches thick; clear, smooth lower boundary.
C_g 42 inches+, light-gray sand and sandy loam; structureless.

Included with this soil in mapping are some areas of Myatt soils that were too small to map separately. In some areas the surface layer is sandy loam.

Okenee loam occupies areas that are difficult to drain. In most places there are no suitable outlets for drainage ditches. If outlets are available, the soils are well suited to artificial drainage and to sprinkler irrigation. Crops on this soil respond well if fertilizer is added. The soil has good tilth, and, if it is drained, it can be cultivated or grazed soon after rains. Because water stands on or near the surface of this soil most of the time, it is difficult to manage and harvest timber.

If drained, this soil is well suited to corn, oats, soybeans, and truck crops and to dallisgrass, tall fescue, whiteclover, and annual lespedeza. To maintain the content of organic matter, grow cover crops every other year and turn all crop residues under. Apply lime for most crops if the best yields are to be obtained from fertilizer that has been added.

This soil is probably best used for timber. It has a high site index for loblolly and slash pines, gum, and cypress. Annuals are the best plants to seed to provide food and cover for wildlife. There are some good sites for dug irrigation pits; the pits may be hard to maintain, however, because of the sandy substratum. (Capability unit IIIw-4; woodland group 5.)

Pits and Dumps

Pits and dumps (Pd).—This miscellaneous land type is made up of areas from which gravel or soil material has been removed to use for building roads. On some of the areas, there are a few scattered pines that have reseeded naturally. Areas that do not have a cover of vegetation should be planted to pine trees, kudzu, or Coastal bermudagrass. Some of the deeper pits contain water. Probably, these could be used for irrigation pits or could be stocked with fish. (Capability unit VIIe-2; woodland group 17.)

Plummer Series

The Plummer series consists of gray, deep, level to nearly level soils that are very poorly drained. The soils occur in wet, seepy areas or in depressions. They are at

the heads of streams and along small streams in the middle and upper parts of the Coastal Plain and the Sand Hills. The soils have formed in beds of unconsolidated sand. The original vegetation was mainly water oak and blackgum but included some cypress and an understory of gallberry, canes, and briers. Most of the soils are still covered by these same kinds of plants. Little of the acreage has been cultivated or used for pasture.

The Plummer soils occur near the Lakeland, Rains, Norfolk, and Gilead soils. They have a lower natural supply of plant nutrients than these soils and a grayer color. They occupy lower positions than the Lakeland, Norfolk and Gilead soils.

The surface layer of the Plummer soils ranges in color from black to light gray, depending upon the content of organic matter. In some places the subsoil is not mottled. In others it has lenses of sandy clay or clay.

These soils have a thin surface layer that is high in organic matter, but they are otherwise low in organic matter. They also have a low natural supply of plant nutrients. Permeability is rapid. Only one soil of this series, Plummer loamy sand, is mapped in this county.

Plummer loamy sand (Pm) (0 to 2 percent slopes).—This soil occurs in small areas that are generally covered by native vegetation. The following describes a profile in a moist, wooded area:

A_1 0 to 2 inches, dark grayish-brown (2.5Y 4/2) loamy sand; weak, fine, crumb structure; very friable; many roots; strongly acid; 2 to 4 inches thick; abrupt, smooth lower boundary.

A_2 2 to 5 inches, grayish-brown (2.5Y 5/2) loamy sand; weak, fine, crumb structure; very friable; strongly acid; in most places 3 to 5 inches thick; abrupt, smooth lower boundary.

A_3 5 to 11 inches, light brownish-gray (10YR 6/2) loamy sand; weak, fine, crumb structure; very friable; some mixing of material from the A_2 horizon; many roots; medium acid; 6 to 8 inches thick; clear, wavy lower boundary.

B_{2g} 11 to 32 inches, gray (10YR 6/1) loamy sand; has common, fine, distinct mottles of strong brown (7.5YR 5/8); weak, fine, crumb to medium, subangular blocky structure; friable; a few roots; strongly acid; 20 to 30 inches thick; gradual, wavy lower boundary.

C_g 32 inches+, dark-gray (N 4/) sand and sandy loam; common, medium, prominent mottles of yellowish red (5YR 5/8); medium acid.

Included in mapping are some areas of colluvial or alluvial soils that were too small to map separately. In some areas the surface layer ranges from fine sand and sand to loamy sand.

Plummer loamy sand occurs in areas that are hard to drain. Fertilizer that has been added soon leaches out of the soil.

This soil is not suited to cultivation. If there are open areas that can be used for pasture, a small amount of fertilizer should be added to encourage the growth of carpetgrass and other native grasses. Woodlands need protection from fire and grazing. (Capability unit Vw–2; woodland group 5.)

Portsmouth Series

The Portsmouth series is made up of level or nearly level, very poorly drained soils that have a black, organic surface layer. The soils are deep and have formed in beds of unconsolidated sand and clay. They occur in the middle and upper parts of the Coastal Plain in Darlington County below the Sand Hills. The soils are in slight depressions at the beginning of natural drainageways or along their course. The original vegetation was mainly cypress, blackgum, sweetgum, water oak, and poplar, but it included some pine. The areas have all been cut over. About one-third of the acreage is used for crops and pasture. The soils are among the most productive agricultural soils of the county.

These soils occur near the Norfolk, Dunbar, Klej, Rains, and Coxville soils. They are not so well drained as the Norfolk and Dunbar soils and occur at lower elevations. They occur at about the same elevations as the Klej, Rains, and Coxville soils, but they have a thicker organic surface layer than those soils. The Portsmouth soils have a tougher, finer textured subsoil than the Klej and Rains soils, and they are more poorly drained than the Coxville soils.

The surface layer of the Portsmouth soils ranges in texture from sandy loam to loam. It ranges in thickness from 8 to 20 inches, and in color, from black to dark gray. The subsoil ranges from sandy clay to sandy clay loam in texture and from 15 to 30 inches in thickness. It has small red and brown mottles in some places.

These soils are high in content of organic matter and medium in their natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. The soils are strongly acid.

Portsmouth mucky loam (Po) (0 to 2 percent slopes).—This is among the best soils in the county for truck crops. The following describes a profile in a moist site under cutover cypress and pine:

A_0 1 to 0 inch of litter made up of pine and cypress needles.

A_1 0 to 7 inches, black (N 2/) loam; very friable; weak, fine, crumb structure; high content of organic matter; strongly acid; 6 to 8 inches thick; clear, smooth lower boundary.

A_2 7 to 12 inches, black (5Y 2/1) loam; very friable; weak, fine, crumb structure; high content of organic matter; strongly acid; 5 to 7 inches thick; clear, smooth lower boundary.

B_{2g} 12 to 29 inches, gray (5Y 6/1) sandy clay; friable; weak, fine, subangular blocky structure; continuous clay films; a few, small iron concretions; strongly acid; 16 to 20 inches thick; gradual, wavy lower boundary.

C_g 29 inches+, light-gray (5Y 7/1) sandy clay loam.

Included with this soil in mapping are some areas of Klej and Rains soils that were too small to map separately.

If drained, Portsmouth mucky loam can be used for crops and pasture. It is well suited to corn, oats, soybeans, and truck crops and to dallisgrass, tall fescue, whiteclover, and annual lespedeza grown for hay and pasture. Lime and fertilizer are required for most crops. Cover crops need to be grown every other year, and all crop residues should be returned to the soil to help maintain the content of organic matter. The soil has good tilth. It can be grazed soon after rains, if it has been drained adequately, but not so soon as other upland soils that are well drained.

This soil can be drained easily by tile or open ditches, but suitable outlets are not always available. The soil is well suited to sprinkler irrigation. There are some good

sites for dug irrigation pits, but each site must be checked to determine the depth to water-bearing sand.

This soil is well suited to loblolly, slash, and pond pines. If it is drained, annual plants can be seeded to provide food for wildlife. (Capability unit IIIw–4; woodland group 5.)

Portsmouth sandy loam (Ps) (0 to 2 percent slopes).—The surface layer of this soil contains more sandy material and less organic matter than that of Portsmouth mucky loam. Otherwise, the profiles of the two soils are similar. The soils are suited to the same crops and require similar management. (Capability unit IIIw–4; woodland group 5.)

Rains Series

The Rains series consists of deep, gray, level or nearly level soils that are poorly drained. The soils have formed in sandy deposits washed from the Coastal Plain. They are at the heads of streams or in drainageways in the Sand Hills of Darlington County and are in flat, wet, sandy areas in other parts of the county. The original vegetation was water oak, blackgum, sweetgum, maple, and cypress. Now, about 90 percent of the acreage is occupied by cutover stands of the same kinds of trees.

Generally, the Rains soils occur near the Gilead, Lynchburg, Klej, and Plummer soils. They occupy lower positions than the Gilead and Lynchburg soils, which are better drained. The Rains soils occur in positions similar to those occupied by the Plummer soils, and they have a similar color. Their subsoil is more friable and is coarser textured than that of the Gilead soils; it is similar in texture to that of the Lynchburg soils, but it lacks the yellow and brown mottles. Their subsoil is finer textured than that of the Plummer and Klej soils, and it is not mottled like that of the Klej soils.

The surface layer of the Rains soils ranges from 8 to 18 inches in thickness. Its color ranges from black to light gray, depending upon the content of organic matter. In some places the subsoil, to depths of 24 to 30 inches, has lenses of sand and clay.

These soils are low in content of organic matter and in their natural supply of plant nutrients. Surface runoff is slow, and internal drainage is medium. The soils are acid. Only one soil of this series, Rains sandy loam, is mapped in this county.

Rains sandy loam (Ra) (0 to 2 percent slopes).—This soil occupies low areas that are hard to drain. The following describes a profile in a moist, cutover woodland:

A_1 0 to 5 inches, very dark gray (5Y 3/1) sandy loam; weak, fine, crumb structure; very friable; medium organic matter; strongly acid; 4 to 6 inches thick; clear, smooth lower boundary.

A_2 5 to 9 inches, gray (5Y 5/1) sandy loam; weak, fine, crumb structure; very friable; strongly acid; 4 to 6 inches thick; clear, smooth lower boundary.

B_{2g} 9 to 27 inches, gray (5Y 6/1) sandy loam to sandy clay loam; weak, fine, crumb structure; very friable, many pores; strongly acid; 16 to 20 inches thick; gradual, wavy lower boundary.

C_g 27 inches+, light-gray (5Y 7/2) sand and sandy clay loam; a few, medium, faint, mottles of white (5Y 8/1).

Included with this soil in mapping are some areas of Klej soils that were too small to map separately. In some areas the surface layer is loam.

Rains sandy loam is not suited to cultivation. It occupies areas that are hard to drain. In many places suitable outlets for drainage ditches are located a long distance away. Generally, the cost of clearing the areas prohibits their use for pasture. Large amounts of fertilizer and lime are required, and these leach out readily. The areas can be grazed only during the drier periods of the year.

Most areas of this soil that are not covered by trees have a growth of carpetgrass that can be improved for grazing by adding fertilizer. If drainage is feasible, large, open areas can be fertilized and planted to bahiagrass.

This soil is best used for trees, and it is well suited to loblolly, slash, and pond pines. It is not suited to intensive management for wildlife. There are some good sites for dug irrigation pits, but each site must be checked to determine the depth to water-bearing sand. The ditches should be designed so that the sides have enough slope to prevent caving. (Capability unit Vw–2; woodland group 5.)

Ruston Series

The Ruston series is made up of deep, level to sloping soils that are well drained. The soils have formed in beds of unconsolidated sand and clay on uplands of the Coastal Plain. Most of the areas are adjacent to the Pee Dee River terrace and just south of the Sand Hills in the northwestern part of Darlington County. The original vegetation was mainly longleaf and loblolly pines but included some white and red oaks. Now, the soils are used mainly for cultivated crops; but a small acreage is in cutover longleaf and loblolly pines. The soils are among the most desirable agricultural soils in the county.

The Ruston soils occur near the Norfolk, Lakeland, Gilead, Vaucluse, Eustis, Dunbar, and Coxville soils. They are similar to the Norfolk soils, but their subsoil is yellowish red or red rather than yellow or yellowish brown. They are finer textured throughout than the Lakeland and Eustis soils, which are excessively drained, and they have a higher natural supply of plant nutrients. In contrast to the Gilead and Vaucluse soils, the Ruston soils lack the compact, cemented horizon typical of those soils and have no mottling in the B horizon. They are better drained than the Dunbar and Coxville soils.

The surface layer of the Ruston soils ranges from grayish brown to brown in color. It ranges from sandy loam or fine sandy loam to loamy sand in texture. The subsoil ranges from red to yellowish red in color and from sandy clay loam to sandy loam in texture. It is 30 to 40 inches thick.

These soils are medium in content of organic matter, and they have a high natural supply of plant nutrients. The permeability, the rate of infiltration, and the water-holding capacity are all moderate. The soils are medium acid.

Ruston sandy loam, level phase (RsA) (0 to 2 percent slopes).—Most of this soil is used for crops. The following describes a profile in a moist, cultivated area:

A_p 0 to 6 inches, grayish-brown (10YR 5/2), light sandy loam; weak, fine, crumb structure; very friable; slightly acid; many fine roots; has a few, small iron concretions

on the surface; 6 to 7 inches thick; abrupt, smooth lower boundary.

A_2 6 to 11 inches, light yellowish-brown (10YR 6/4), light sandy loam; weak, fine, crumb structure; very friable; many roots; medium acid; 5 to 7 inches thick; clear, wavy lower boundary.

B_1 11 to 15 inches, yellowish-red (5YR 5/6) sandy loam; friable; weak, medium, subangular blocky and weak, fine, crumb structure; many fine pores; medium acid; 4 to 6 inches thick; clear, wavy lower boundary.

B_{21} 15 to 27 inches, red (2.5YR 4/8) sandy clay loam; weak, medium, subangular blocky structure; a few, patchy clay films; medium acid; 12 to 15 inches thick; gradual, wavy lower boundary.

B_{22} 27 to 50 inches, red (10R 4/6) sandy clay loam; weak, medium, subangular blocky structure; patchy clay films; medium acid; 22 to 26 inches thick; gradual, wavy lower boundary.

C 50 inches+, dark-red (2.5YR 3/6) and strong-brown (7.5YR 5/6) sandy clay loam and sandy clay.

Included with this soil in mapping were some areas of soils that normally occur near this soil but that were too small to map separately.

This soil is well suited to cotton, corn, small grains, soybeans, truck crops, and all the other crops generally grown in the county. It is also suited to bahiagrass and Coastal bermudagrass grown with sericea lespedeza or crimson clover for hay and grazing. If liberal amounts of fertilizer are added and a cover crop of legumes is turned under each year, row crops can be grown every year. Crops respond well if fertilizer is added, and the fertilizer does not leach out readily. Lime should be applied according to needs indicated by soil tests.

This soil is easy to cultivate, and it can be cultivated soon after rains. It can be grazed during most kinds of weather. The soil is suited to irrigation. Planting windbreaks in large fields, at right angles to the prevailing winds, will help to control erosion. (Capability unit I–1; woodland group 2.)

Ruston sandy loam, gently sloping phase (RsB) (2 to 6 percent slopes).—This soil has stronger slopes than Ruston sandy loam, level phase, and it is a little more dissected.

Most of the soil is used to grow cotton and corn. It is well suited to most of the crops commonly grown in the county, but it is somewhat likely to erode. If it is cultivated, terracing, use of grassed waterways, and other suitable water-control practices are needed. The soil is suited to bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu grown for hay and grazing. It has a high site index for pines, but it is best used for cultivated crops. (Capability unit IIe–1; woodland group 2.)

Ruston sandy loam, eroded sloping phase (RsC2) (6 to 10 percent slopes).—This soil has stronger slopes than Ruston sandy loam, level phase, and it generally has a thinner surface layer. The surface layer ranges from 4 to 8 inches in thickness. The acreage is small and consists of a few, small areas that are near the gently sloping soils of the series. Some of the areas have not been cleared.

Where this soil has been cleared, it is used for cotton, corn, and small grains. The soil is suitable for cultivation, but, because of its strong slopes, it needs to have close-growing crops grown most of the time. Extra care is needed in applying practices to control erosion.

This soil is suited to bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu grown for hay and grazing. The site index for loblolly and slash pines is high, but it is medium for longleaf pine. This soil has some good sites for farm ponds. It provides excellent material for building dams. (Capability unit IIIe–1; woodland group 9.)

Ruston fine sandy loam, level phase (RfA) (0 to 2 percent slopes).—This soil is finer textured throughout than Ruston sandy loam, level phase, but, otherwise, the profiles of the two soils are similar. In some places this soil has a surface layer that is less than 12 inches thick and a subsoil that is heavier textured than that of the normal Ruston soil.

This soil is suited to the same crops as Ruston sandy loam, level phase. If it is managed the same, about the same yields are obtained. (Capability unit I–1; woodland group 2.)

Ruston fine sandy loam, gently sloping phase (RfB) (2 to 6 percent slopes).—This soil has stronger slopes than Ruston sandy loam, level phase, and it is finer textured throughout. In some places the subsoil is heavier textured than that of the normal Ruston soil.

This soil is suited to the same crops as Ruston sandy loam, level phase, but it is more likely to erode. It is also suited to bahiagrass, Coastal bermudagrass, sericea lespedeza, and kudzu planted for hay and grazing. If the soil is cultivated, terracing, use of grassed waterways, and other suitable water-control practices will be needed. The soil has a high site index for pine. (Capability unit IIe–1; woodland group 2.)

Ruston loamy sand, level thick surface phase (RtA) (0 to 2 percent slopes).—This soil has a thicker, sandier surface layer than Ruston sandy loam, level phase, and a somewhat sandier subsoil. Consequently, it is more droughty and is more likely to be eroded by wind. The surface layer ranges from 18 to 30 inches in thickness.

This soil is well suited to sweetpotatoes, watermelons, crotalaria, velvetbeans, soybeans, and rye. It is fairly well suited to cotton, tobacco, corn, peanuts, and oats. Coastal bermudagrass, bahiagrass, and sericea lespedeza are suitable plants to seed for hay and pasture. Large amounts of fertilizer and organic matter are required to maintain productivity, to decrease leaching, and to control wind erosion. This soil is suited to slash and loblolly pines. (Capability unit IIs–1; woodland group 9.)

Ruston loamy sand, gently sloping thick surface phase (RtB) (2 to 6 percent slopes.—This soil has stronger slopes than Ruston sandy loam, level phase, a thicker surface layer, and a somewhat sandier subsoil. As a result, it is more likely to be eroded by wind and water. Also, fertilizer that has been added leaches out more readily. The surface layer ranges from 18 to 30 inches in thickness.

This soil is suited to sweetpotatoes, watermelons, crotalaria, velvetbeans, soybeans, and rye. It is fairly well suited to cotton, tobacco, corn, peanuts, and oats. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are suitable plants to seed for hay and pasture. If the soil is cultivated, terracing, use of grassed waterways, and other suitable water-control practices will help to prevent erosion. The soil should be kept in close-growing crops at least half of the time. Loblolly and slash pines grow well on this soil. (Capability unit IIs–1; woodland group 9.)

Ruston loamy sand, sloping thick surface phase (RtC) (6 to 10 percent slopes).—This soil has stronger slopes, a thicker surface layer, and a somewhat sandier subsoil than Ruston sandy loam, level phase. Consequently, it is droughtier and added fertilizer leaches out more rapidly. The surface layer ranges from 18 to 30 inches in thickness.

This soil is suited to the same crops as Ruston sandy loam, level phase, but, even though suitable conservation practices are applied, yields are lower. Coastal bermudagrass, bahiagrass, and sericea lespedeza are the best plants to seed for hay and pasture.

This soil requires large amounts of organic matter. Tillage should be on the contour. Apply all feasible water-control practices to help control erosion. The soil should be kept in close-growing crops 2 out of 3 years.

Loblolly and slash pines grow well on this soil. There are some good sites for farm ponds. (Capability unit IIIe–5; woodland group 9.)

Rutlege Series

The Rutlege series is made up of level to nearly level, very poorly drained soils that have a black, organic surface layer. These deep soils have formed in coastal plain deposits of sand and loamy sand. They occur in depressions and bays or on low flats at the heads of drainageways. The areas are 2 to 10 acres in size; most of them are in cutover timber or pasture. The original vegetation was cypress, blackgum, water oak, poplar, and sweetgum, with some loblolly pine.

These soils occur near the Eustis, Lakeland, Lakewood, Klej, Plummer, and Portsmouth soils. They have poorer drainage than the Eustis, Lakeland, and Lakewood soils and a thicker organic surface layer. They have a thicker organic surface layer than the Klej and Plummer soils and a sandier subsoil than the Portsmouth soils.

The surface layer of the Rutlege soils ranges from 10 to 24 inches in thickness and from loamy sand to loam in texture. In places dark-brown stains occur in the subsoil.

These soils are high in organic matter, but they are naturally low in plant nutrients. Permeability is rapid. The rate of infiltration and the water-holding capacity are moderate. The soils are strongly acid.

Rutlege loamy sand (Ru) (0 to 2 percent slopes).—This soil occupies small areas in depressions or at the heads of drainageways. The following describes a profile in a moist, cutover woodland site:

A_0 1 to 0 inch of forest litter.

A_1 0 to 12 inches, black (N 2/) loamy sand with some grains of white sand; weak, fine, crumb structure; very friable; high content of organic matter; strongly acid; 12 to 15 inches thick; clear, smooth lower boundary.

B_{2g} 12 to 26 inches, gray (N 5/) loamy sand; weak, fine, crumb structure; very friable; strongly acid; 12 to 16 inches thick; gradual, wavy lower boundary.

C_g 26 inches+, light-gray (5Y 7/1) sand.

Included with this soil are some areas of Plummer and Portsmouth soils that were too small to map separately.

If drained, this soil can be used for crops. Corn, oats, soybeans, and truck crops give fair yields, but they require lime and fertilizer. Dallisgrass, tall fescue, whiteclover, and annual lespedeza require lime and large amounts of fertilizer for good yields. The soil is easy to drain by open ditches or tile, but suitable outlets are not always available.

This soil is probably best used for pasture. Loblolly and slash pines grow well; the site index for loblolly and slash pines is high. (Capability unit IIIw–4; woodland group 5.)

Rutlege mucky loam (Ry) (0 to 2 percent slopes).—This soil occurs in smaller areas than Rutlege loamy sand. It has a fine-textured, organic surface layer that does not contain sand. Otherwise, its profile is similar to that of Rutlege loamy sand. The two soils can be used and managed in about the same way, but this soil is generally harder to drain because it occurs in small, low-lying pockets. (Capability unit IIIw–4; woodland group 5.)

Swamp

Swamp (Sw) (0 to 2 percent slopes).—This land type occurs along all of the major streams in the county. The areas are flooded frequently and have water standing on them most of the time. The original vegetation consisted of tupelo-gum, blackgum, and sweetgum, and of water-tolerant oaks, cypress, and juniper with an understory of canes, briers, and coarse grasses. Now, most of the cypress and juniper has been removed, and the vegetation consists mainly of cutover gum and oak.

The surface layers of the soils that make up this land type range in texture from sandy clay to heavy clay and in color from gray to brown or black. The content of organic matter in the soils varies; in some areas the soils have a thick, black organic layer that is underlain by light-gray sand or clay.

Some areas of this land type along the larger streams can be used for pasture if they are protected by dikes and drained. The areas are best used, however, for growing hardwoods. (Capability unit VIIw–1; woodland group 17.)

Vaucluse Series

The Vaucluse soils are gently sloping to moderately steep and are well drained. They have a compact, slightly cemented subsoil. The soils have formed in beds of unconsolidated sand and clay. They occur mostly in the Sand Hills of the county, but there is a small acreage along the breaks of streams in the upper and middle parts of the Coastal Plain.

Generally, these soils occupy small, gently sloping areas. In some places, however, the areas are broken and are 50 to 75 acres in size. The original vegetation consisted of longleaf and loblolly pines and turkey and blackjack oaks, with an understory of various kinds of grasses. In most of the steeper areas, the present vegetation is cutover pines and scrub oaks; the smaller, gently sloping areas are generally cultivated.

These soils occur near the Gilead, Ruston, and Norfolk soils, which have better developed profiles than the Vaucluse and lack the compact, cemented subsoil. The Vaucluse soils resemble the Ruston in color, but their subsoil is redder than that of the Gilead and Norfolk soils.

The Vaucluse soils are shallow to moderately deep. The surface layer ranges from 4 to 30 inches in thickness and

from very dark gray to light gray in color. Its texture ranges from sandy loam to loamy sand. Generally, the B horizon is 8 to 20 inches thick, but in some places it is absent. The subsoil is yellowish red to reddish brown; in some places it is mottled.

These soils are naturally low in plant nutrients and organic matter. Permeability is moderate to slow. The surface drainage is medium to rapid, but internal drainage is medium. The water-holding capacity is low, and the soils are acid throughout.

Vaucluse sandy loam, gently sloping phase (VsB) (2 to 6 percent slopes).—This soil occupies areas of about 10 to 15 acres in size. The following describes a profile in a moist area under cutover loblolly pine:

A_1 0 to 5 inches, very dark gray (10YR 3/1), light sandy loam; weak, fine, crumb structure; very friable; medium acid; 4 to 6 inches thick; clear, smooth lower boundary.

A_2 5 to 12 inches, yellowish-red (5YR 5/6) sandy loam; weak, fine, crumb structure; very friable; strongly acid; 6 to 8 inches thick; clear, smooth lower boundary.

B_{2m} 12 to 20 inches, red (2.5YR 4/8) sandy clay loam; moderate, medium, subangular blocky structure; friable to firm when moist, but hard and slightly cemented when dry; some penetration of material from the A_2 horizon; thin, patchy clay films; strongly acid; 7 to 10 inches thick; clear, smooth lower boundary.

B_3 20 to 25 inches, reddish-yellow (5YR 6/8) sandy loam; weak, medium, subangular blocky structure; friable; medium acid; 4 to 6 inches thick; gradual, smooth lower boundary.

C 25 inches+, light reddish-brown (5YR 6/4) silty clay to silty clay loam; common, medium, faint mottles of pinkish gray (5YR 7/2); massive; plastic and slightly sticky when wet.

Most of this soil is used for row crops or is in trees. The soil is suited to oats, cotton, corn, crotalaria, and velvetbeans. It is fairly well suited to bermudagrass, bahiagrass, sericea lespedeza, and crimson clover grown for hay and pasture. Large amounts of fertilizer and organic matter must be added for crops to make good yields. Water-control practices, such as terracing and using sodded waterways, are needed to prevent erosion and to conserve moisture. Windfall is a hazard in some areas. The site index for loblolly pine is moderately high. (Capability unit IIe-4; woodland group 14.)

Vaucluse sandy loam, sloping phase (VsC) (6 to 10 percent slopes).—Generally, this soil occurs in larger areas than Vaucluse sandy loam, gently sloping phase. It has stronger slopes, but the profiles of the two soils are similar.

This soil is suited to the same crops as Vaucluse sandy loam, gently sloping phase. It is more likely to erode, however, and yields are lower, even though similar amounts of fertilizer and organic material are added. Close-growing crops need to be grown 2 years out of 3 to help prevent erosion. Tillage should be on the contour. Terraces and sodded waterways are necessary to conserve soil and moisture. This soil has a medium site index for loblolly pine. (Capability unit IIIe-4; woodland group 14.)

Vaucluse sandy loam, strongly sloping phase (VsD) (10 to 15 percent slopes).—This soil is steeper than Vaucluse sandy loam, gently sloping phase, and it has a thinner surface layer. Most of the areas are about 10 to 15 acres in size and are covered by cutover pine and scrub oak.

This soil is droughty. It is not suited to hay crops and pasture, nor should it be used for row crops. Because of its strong slopes and moderate permeability, it is best used for trees. The site index for loblolly pine is medium. Windfall is a hazard. (Capability unit VIe-2; woodland group 14.)

Vaucluse sandy loam, moderately steep phase (VsE) (15 to 25 percent slopes).—This soil occurs along the breaks of streams or on abrupt escarpments within areas of less sloping Vaucluse soils. It generally occupies areas that are 5 to 10 acres in size. This soil is better suited to growing trees for pulpwood than to pasture or tilled crops. The trees should not be clear cut. The soil has a medium site index for loblolly pine. Windfall is a hazard. (Capability unit VIIe-2; woodland group 14.)

Vaucluse sandy loam, eroded sloping phase (VsC2) (6 to 10 percent slopes).—This soil is steeper than Vaucluse sandy loam, gently sloping phase, and its surface layer is only 6 to 8 inches thick. The areas are generally 5 to 10 acres in size.

This soil has a serious risk of erosion, and there are many galled spots. The rate of infiltration is slow, and the soil has a low water-holding capacity and is droughty.

This soil is fairly well suited to cotton, corn, and oats, but it is not suited to continuous cropping. If it is necessary to grow row crops, plant them in contour strips and use a 4-year cropping system that includes sericea lespedeza and bahiagrass. Yields are lower than on Vaucluse sandy loam, gently sloping phase, even though similar amounts of fertilizer are applied.

This soil is best used for trees. It has a medium site index for loblolly pine. Windfall is a more serious hazard than on Vaucluse sandy loam, gently sloping phase. (Capability unit IVe-4; woodland group 14.)

Vaucluse sandy loam, eroded strongly sloping phase (VsD2) (10 to 15 percent slopes).—This soil is steeper than Vaucluse sandy loam, gently sloping phase, and its surface layer is only 4 to 6 inches thick. There are many galled spots. Generally, the areas are only about 5 acres in size.

This soil is best suited to trees, but it is hard to establish trees on the galled spots. The trees should not be clear cut. The site index for loblolly pine is medium. Windfall is a serious hazard. (Capability unit VIIe-2 woodland group 14.)

Vaucluse loamy sand, gently sloping thick surface phase (VaB) (2 to 6 percent slopes).—This soil generally occupies larger areas than Vaucluse sandy loam, gently sloping phase, and its surface layer ranges from 18 to 30 inches in thickness. The areas are 25 to 50 acres in size.

The soil can be used and managed about the same as Vaucluse sandy loam, gently sloping phase. It is droughtier, however, and yields are lower, even though similar amounts of fertilizer are applied. In some places wind erosion is a hazard. (Capability unit IIs-1; woodland group 14.)

Vaucluse loamy sand, sloping thick surface phase (VaC) (6 to 10 percent slopes).—This soil has steeper slopes than Vaucluse sandy loam, gently sloping phase, and a coarser textured surface layer that is 18 to 30 inches thick. Otherwise, the profiles of the two soils are

similar. The soils are suited to the same crops. Even though similar amounts of fertilizer are applied, however, lower yields are obtained on this soil than on Vaucluse sandy loam, gently sloping phase. (Capability unit IIIe–4; woodland group 14.)

Wahee Series

The Wahee soils are level to nearly level and are moderately well drained to somewhat poorly drained. They are moderately deep. These soils have formed in beds of unconsolidated sand and clay washed from the Coastal Plain and the Piedmont. They occur in the eastern part of the county on terraces of the Pee Dee River. The areas are small. Most of them consist of cutover woodland, and only a small part is in crops. The original vegetation was longleaf and loblolly pines, red and white oaks, and some sweetgum and poplar.

These soils occur near the Cahaba, Kalmia, Flint, Izagora, and Leaf soils. They are not so well drained as the Cahaba and Kalmia soils and have a finer textured, mottled subsoil. They differ from the Flint soils in having a yellowish-brown subsoil rather than one that is yellowish red or brown. The Wahee soils are better drained than the Leaf soils and have a finer textured subsoil than the Izagora soils.

The surface layer of the Wahee soils is 5 to 12 inches thick and has a sandy loam to very fine sandy loam texture. The color ranges from gray to pale yellow. The subsoil ranges from very fine sandy clay loam to silty clay in texture. In most places it is mottled at depths of 10 to 15 inches. The size and amount of the mottles vary, and in some places there are no mottles in the upper part of the subsoil. Some areas have slopes of as much as 6 percent.

The supply of organic matter and plant nutrients is medium in these soils. The permeability, the rate of infiltration, and the internal drainage are all slow. The water-holding capacity is moderate. The soils are strongly acid to very strongly acid.

Wahee very fine sandy loam (Wf) (0 to 2 percent slopes).—This soil occupies areas as large as 75 acres. The following describes a profile in a moist area under cutover pine:

A_0 1 to 0 inch of forest litter.

A_1 0 to 5 inches, pale-yellow (5Y 7/3) very fine sandy loam; weak, fine, crumb structure; very friable; very strongly acid; 5 to 6 inches thick; clear, smooth lower boundary.

B_1 5 to 10 inches, light olive-brown (2.5Y 5/4) very fine sandy clay loam; weak, medium, subangular blocky structure; friable when moist, but slightly plastic and sticky when wet; some penetration of material from the A_1 horizon; some small pores; strongly acid; 5 to 7 inches thick; clear, smooth lower boundary.

B_2 10 to 28 inches, light yellowish-brown (2.5Y 6/4) silty clay loam to silty clay; a few, fine, prominent mottles of red (10R 4/6) and common, medium, distinct mottles of light gray (5Y 7/2), the mottles increasing in size and number with depth; weak, medium, subangular and angular blocky structure; friable when moist, but plastic and sticky when wet; has a few small pores; continuous clay skins; strongly acid; 16 to 20 inches thick; gradual, wavy lower boundary.

C 28 to 48 inches+, yellowish-brown (10YR 5/6) silty clay mottled with red (10R 4/6) and light olive gray (5Y 6/2).

Included with this soil in mapping are some areas of Flint and Leaf soils that were too small to map separately.

Wahee very fine sandy loam is well suited to oats, common lespedeza, corn, and soybeans. It is fairly well suited to cotton and vetch. Because water infiltrates slowly, it is best to keep close-growing crops on the areas about half of the time. The areas that are more nearly level need shallow ditches to drain off excess water; the sloping areas should be cultivated on the contour to prevent erosion.

Most of this soil is in trees, but it is suited to bermudagrass, dallisgrass, bahiagrass, crimson and white clovers, and common lespedeza grown for pasture and hay. The soil needs fertilizer and lime. The site index for loblolly pine is moderately high. (Capability unit IIe–3; woodland group 8.)

Wahee sandy loam (Wa) (0 to 2 percent slopes).—This soil occurs in similar positions and occupies areas of about the same size as Wahee very fine sandy loam. The surface layer is somewhat coarser textured, but otherwise the profiles of the two soils are similar. This soil has a more rapid rate of infiltration.

About half of this soil is cultivated, and the other half is woodland. The soil can be used for crops similar to those grown on Wahee very fine sandy loam, and it requires similar management. (Capability unit IIe–3; woodland group 8.)

Wehadkee Series

The soils of the Wehadkee series are level to nearly level and are very poorly drained. They have a grayish-brown surface layer that ranges in texture from very fine sandy loam to silt loam. The subsoil is mottled, gray silty clay. Water stands on or near the surface during most of the year.

The soils have formed from fine-textured materials that were washed from the Coastal Plain and the Piedmont. In thickness these deposits range from 2 to several feet.

The soils occur throughout the county on the first bottoms of the larger streams. They are near the Congaree and Chewacla soils. The Wehadkee soils are not so well drained as the Congaree and Chewacla soils and occur at lower elevations. The acreage is large, and all of it is in cutover hardwoods. The original vegetation consisted of blackgum, sweetgum, poplar, red oak, cypress, juniper, and maple.

The supply of organic matter and plant nutrients is medium in these soils. Permeability is slow, and the water-holding capacity is high. The soils are strongly acid to medium acid. Only one soil of this series, Wehadkee silt loam, is mapped in Darlington County.

Wehadkee silt loam (Wh) (0 to 2 percent slopes).—This soil occurs in narrow bands along the larger streams. Some of the areas are as large as 200 acres. The following describes a profile in a moist area under cutover hardwoods:

A_0 1 to 0 inch of forest litter.

A_{11} 0 to 2 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine, crumb structure; friable; strongly acid;

medium content of organic matter; contains many roots; 2 to 3 inches thick; clear, smooth lower boundary.

B_{12g} 2 to 12 inches, dark grayish-brown (10YR 4/2) silty clay loam; weak, subangular blocky structure; friable when moist, but sticky and plastic when wet; medium acid; 9 to 12 inches thick; gradual, wavy lower boundary.

C_g 12 to 30 inches+, gray, brown, and yellow silty clay that is sticky when wet.

This soil is flooded frequently and has no suitable outlets for drainage. It is too wet to use for crops or pasture, and is best suited to hardwoods. If the soil were diked and drained, it would be suited to dallisgrass and lespedeza grown for pasture. Drainage also needs to be improved for the hardwoods. Generally, the soil is too wet for pines, but, if the areas were drained, the site index for loblolly pine would be high. (Capability unit VIIw-1; woodland group 1.)

Formation and Classification of the Soils

In this section the factors that have affected the formation and composition of the soils in Darlington County are discussed. Also discussed is the classification of the soils by higher categories.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon parent material. The characteristics of the soil at any given point depend upon (1) the physical and mineralogical composition of the parent material, (2) the climate, (3) the plant and animal life, (4) the relief or lay of the land, and (5) time. Through their effect on plants, climate and relief modify the characteristics of the soil. Relief, in turn, strongly influences drainage, aeration, runoff, erosion, and exposure to sun and wind.

The active forces that gradually form a soil from parent material are climate and plant and animal life. Relief, in most places, largely controls natural drainage. It, therefore, influences the effectiveness of the active soil-forming processes. If climate and living organisms have not been in force long enough to produce a soil that is nearly in equilibrium with its environment, the soil is considered young. When a soil has developed certain definite characteristics and has a well-developed profile, it is said to be mature.

Generally, soil-forming factors are complex. Each force interacts with others and slowly, but constantly, changes are brought about. The soil itself is a complex substance; it is constantly changing and never reaches a static condition. It passes slowly through stages that may be considered as youth and maturity and even old age. Thus, the character and thickness of a soil depends upon the intensity of the soil-forming processes, the length of time during which the various processes have acted, and the resistance of the parent material to change.

At any stage of its history, a soil may be affected by mechanical agencies. The surface layer may be wholly or partly removed by erosion and the material beneath exposed. Then, the soil-making forces begin working on the exposed material to form a new surface layer. Whether or not erosion benefits the growth of plants depends on the rate of removal and on the supply of plant nutrients available in the new surface layer. Normal erosion may benefit the soil; accelerated erosion is caused by misuse of the land.

Parent material

Darlington County is in the middle and upper parts of the Atlantic Coastal Plain of northeastern South Carolina. It is in the Red-Yellow Podzolic soil zone of the southeastern part of the United States (*5*). The soils have formed from materials transported by the waters of the Atlantic Ocean and coastal streams and deposited in beds of unconsolidated sand and clay. The forests under which the soils formed were made up of pines and hardwoods.

Geologically, the area consists of terraces of marine origin that were probably under some fluvial influence in the Pleistocene epoch. There are five marine terraces in the county—the Brandywine, Coharie, Sunderland, Wicomico, and Penholoway (*3*). The Sand Hill section in the northern part of the county is considered a part of the Brandywine and Coharie terraces, but the material may have been reworked by wind or water after it was deposited. The elevations of the terraces above the present sea level are: Brandywine, 215 to 270 feet; Coharie, 170 to 215 feet; Sunderland, 100 to 170 feet; Wicomico, 70 to 100 feet; and Penholoway, 42 to 70 feet. The Sand Hills occur at somewhat higher elevations. The unconsolidated sediments that were deposited by the ocean on these terraces vary widely in texture.

Alluvial materials, consisting of sand, gravel, silt, and clay, have been deposited in the valleys of all the major streams and in the valleys of some of their tributaries. These recent deposits show little evidence of soil development.

Colluvial deposits, made up largely of sandy materials, occur along the upper drainageways on the uplands. Soils formed from them are generally sandy and do not have a well-developed profile.

Climate

Darlington County has a humid, warm, continental type of climate. The average annual temperature is about 62 degrees. Rainfall is abundant and averages about 44 inches a year. The amount of rainfall is slightly greater in the spring and summer than in the fall and winter.

Because the climate is warm and the soil is moist much of the time, chemical reactions are rapid. The large amount of rainfall promotes the removal of soluble materials by leaching and the downward movement of less soluble materials, or colloidal matter. Weathering is further hastened because there are only brief periods of alternate freezing and thawing to shallow depths.

Some of the variations in plant and animal life are caused by the action of climatic forces on the soil material. To that extent, climate influences changes in the soil that are brought about by differences in plant and animal population.

Living organisms

Plants, micro-organisms, earthworms, and other forms of life that live on and in the soil are active in the soil-forming processes. The changes they bring about depend mainly on the kind of life processes peculiar to each. The kinds of plants and animals are determined by the climate, parent material, relief, age of the soil, and by other organisms.

Generally, the type of soil in an area varies according to the type of vegetation. In this county the soils have formed under three broad types of vegetation. These are: (1) Pine-hardwood forests, (2) cypress-swamp hardwood forests with some pond pine, and (3) southern whitecedar-swamp -hardwood forests with some cypress and pond pine.

The soils formed under a pine-hardwood type of forest are the most extensive. These are mineral soils and are well drained to poorly drained. They have a light-colored surface layer in which the content of organic matter is about 1 to 3 percent. The soils formed under a cypress-swamp hardwood type of forest with some pond pine are also mineral soils. These soils are poorly drained. They have a surface layer that is dark gray to black in color; the content of organic matter in the surface layer ranges from 5 to 15 percent in forested areas. Generally, within both groups of soils, the soils that have similar texture and drainage have a water table at about the same depth.

In a few, small, swampy areas are organic soils that have formed under a southern whitecedar-swamp hardwood type of forest that included some cypress and pond pine. These organic soils have a content of organic matter that is between 30 and 80 percent. They have formed in areas where water stood on the surface or was near the surface most of the time.

Relief

Relief, by its control of natural drainage, serves as a modifying factor in soil formation. Because of this, several different soils may form from similar parent material. Most of Darlington County is a nearly level to gently sloping plain. There are, however, four general landscape types in the county that affect the formation of the soils. These are described as follows:

(1) The Sand Hills, which have a rolling topography and are deeply dissected by streams; in this area the soils on the ridges are deep and sandy, but those on the slopes adjacent to the streams are shallow.

(2) Sloping, moderately dissected areas near the streams but outside the Sand Hills; here, the soils are mostly well drained.

(3) Broad, slightly dissected, flat areas between streams; most of the soils in these areas have a gray color, are distinctly mottled, and are poorly drained.

(4) Areas on valley floors and on stream bottoms and terraces; the soils in these areas are young and are forming in alluvium.

Time

The degree of horizonation in the soil profile is one measure of the effect of time in the formation of soils. Several factors, however, affect the length of time required for the formation of a soil. In warm, humid areas, such as Darlington County, less time is required for a soil to form a distinct profile than in dry or cold regions. Also, less time is required for soils to form a distinct profile in moderately fine textured Coastal Plain deposits than in coarse-textured deposits. Geologically, the soils of Darlington County are young, and most of the soils have only a moderately well developed profile.

Classification of Soils

One of the main objectives of a soil survey is to describe and identify the soils and to determine their relationship to agriculture. A second objective is to group the soils according to common characteristics. Such a grouping will show the relationship of the soils to one another and to soils of other areas. This is necessary because there are so many different kinds of soils that it would be difficult to remember the characteristics of all of them. If the soils are placed in a few groups, each group having selected characteristics in common, their general nature can be remembered more easily.

The lower categories of classification—the soil type and soil series—are defined in the glossary at the end of this report. The soil phase, a subdivision of the soil series, is also defined. The highest category of classification is the soil order. The orders are made up of suborders, which, in turn, consist of great soil groups (*6*). Several soil series are in each great soil group. Table 10 shows the orders and great soil groups represented in Darlington County. It lists the soil series in each great soil group and gives pertinent information about the soils. All three soil orders—the zonal, intrazonal, and azonal—are represented in this county.

The zonal order is made up of soils that have well-developed characteristics. The soils reflect the predominant influence of climate and living organisms in their formation. Zonal soils are considered normal because their profiles are essentially in equilibrium with the climate and other soil-forming factors in the area. In Darlington County the zonal soils are members of the Red-Yellow Podzolic and Podzol great soil groups.

Intrazonal soils have more or less well-developed soil characteristics that reflect the dominant influence of a local factor of relief or parent material over the effects of climate and living organisms. In places these soils occur in association with zonal soils. Intrazonal soils in this county are members of the Low-Humic Gley and Humic Gley great soil groups.

The azonal order is made up of soils that, because of youth, resistant parent material, or relief, lack well-developed profiles. The azonal soils in this county belong to the Regosol and Alluvial great soil groups.

Many of the soil series are not representative of the central concept of any great soil group but intergrade from one great soil group to another. The classification of the soils in the county is based largely on characteristics observed in the field. It may be revised as knowledge about the soils increases.

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TABLE 10.—*Characteristics and genetic*

ZONAL

Great soil group and series	Parent material	Slope range	Surface soil	
			Color	Texture
Red-Yellow Podzolic Soils:				
Central concept—				
Cahaba	Unconsolidated sand and clay.	Level to gently sloping	Brown to gray	Fine sandy loam
Caroline	Unconsolidated sand and clay.	Strongly sloping	Very dark grayish brown to gray.	Fine sandy loam
Gilead	Unconsolidated sand and clay.	Gently sloping to sloping	Olive gray to pale olive.	Sandy loam
Kalmia	Unconsolidated sand and clay.	Level to gently sloping	Gray	Sandy loam
Marlboro	Unconsolidated sand and clay.	Level to gently sloping	Dark gray to light gray.	Light sandy loam to loamy sand.
Norfolk	Unconsolidated sand and clay.	Level to strongly sloping	Dark gray to brownish gray.	Sandy loam to loamy sand.
Ruston	Unconsolidated sand and clay.	Level to sloping	Grayish brown to brown	Light sandy loam to loamy sand.
Vaucluse	Unconsolidated sand and clay.	Gently sloping to moderately steep.	Very dark gray to light gray.	Sandy loam
Grading to Low-Humic Gley Soils—				
Dunbar	Unconsolidated sand and clay.	Level or nearly level	Very dark grayish brown	Sandy loam to fine sandy loam.
Flint	Unconsolidated sand and clay.	Level to sloping	Dark brown	Fine sandy loam
Goldsboro	Unconsolidated sand and clay.	Level or nearly level	Dark grayish brown	Sandy loam to fine sandy loam.
Izagora	Unconsolidated sand and clay.	Level or nearly level	Grayish brown	Fine sandy loam to sandy loam.
Lynchburg	Unconsolidated sand and clay.	Level or nearly level	Black to light gray	Sandy loam to fine sandy loam.
Wahee	Unconsolidated sand and clay.	Level or nearly level	Gray to pale yellow	Sandy loam to very fine sandy loam.
Podzols:				
Lakewood	Beds of unconsolidated sand.	Nearly level to gently sloping.	Very dark gray to white	Sand

INTRAZONAL

Great soil group and series	Parent material	Slope range	Color	Texture
Low-Humic Gley Soils:				
Coxville	Unconsolidated sand and clay.	Level or nearly level	Black to gray	Loam to sandy loam
Grady	Unconsolidated sand and clay.	Level or nearly level	Black to light gray	Loam to sandy loam
Leaf	Unconsolidated sand and clay.	Level or nearly level	Black to light gray	Sandy loam and fine sandy loam.
Myatt	Unconsolidated sand and clay.	Level or nearly level	Black to light gray	Sandy loam and fine sandy loam.
Plummer	Beds of unconsolidated sand.	Nearly level	Black to light gray	Loamy sand to sand
Rains	Unconsolidated sand and clay.	Level or nearly level	Black to light gray	Loam to sandy loam
Wehadkee	Alluvium	Level or nearly level	Grayish brown to very dark grayish brown.	Silt loam to very fine sandy loam.
Humic Gley Soils:				
Okenee	Unconsolidated sand and clay.	Level or nearly level	Black	Loam to sandy loam
Portsmouth	Unconsolidated sand and clay.	Level or nearly level	Black to dark gray	Sandy loam to loam
Rutlege	Beds of unconsolidated sand.	Level or nearly level	Black	Loamy sand to loam

relationships of soil series

ZONAL

Subsoil		Natural soil drainage	Permeability	Available-moisture capacity
Color	Texture			
Dark red to yellowish red	Sandy clay loam	Good	Moderate to slow	Low.
Yellowish red to brown	Fine sandy clay loam	Moderately good	Slow	Moderate.
Yellow to reddish yellow	Sandy clay loam to sandy loam	Moderately good	Slow	Low.
Pale yellow to reddish yellow	Sandy clay loam	Good	Moderate	Low.
Yellowish brown	Sandy clay loam to sandy clay	Good	Moderate	Moderate.
Yellow to yellowish brown	Sandy loam to sandy clay loam	Good	Moderate	Moderate.
Yellowish red to red	Sandy loam to sandy clay loam	Good	Moderate	Moderate.
Yellowish red to reddish brown	Sandy clay loam to loamy sand	Good	Moderate to slow	Low.
Gray mottled with brown and red	Sandy clay loam to sandy clay	Somewhat poor	Moderately slow to slow.	Moderate.
Red with yellowish-red to strong-brown mottles.	Clay	Moderately good	Slow	Moderate.
Light olive brown	Sandy clay loam to sandy clay	Moderately good	Moderate	Moderate.
Yellowish red to strong brown	Sandy clay loam to sandy loam	Somewhat poor	Moderately slow	Moderate.
Gray mottled with yellowish brown.	Sandy loam to sandy clay loam	Somewhat poor	Moderate	Moderate.
Light yellowish brown	Silty clay loam to silty clay	Moderately good to somewhat poor.	Slow	Moderate.
Dark brown	Sand	Excessive	Very rapid	Very low.

INTRAZONAL

Gray	Sandy clay loam to sandy clay	Poor	Slow	Moderate.
Grayish brown to gray	Sandy loam to sandy clay	Poor	Slow	Moderate.
Gray	Sandy clay loam to fine sandy clay.	Poor	Slow	Moderate.
Gray	Sandy loam to sandy clay loam	Poor	Moderate	Low.
Gray	Loamy sand	Very poor	Rapid	Low.
Gray	Sandy loam to sandy clay loam	Poor	Moderate	Low.
Mottled gray	Silty clay to silty clay loam	Very poor	Slow	High.
Gray	Sand to sandy clay loam	Very poor	Moderate	Moderate.
Gray	Sandy clay to sandy clay loam	Very poor	Moderate	Moderate.
Gray	Sand to loamy sand	Very poor	Rapid	Moderate.

TABLE 10.—*Characteristics and genetic*

AZONAL

Great soil group and series	Parent material	Slope range	Surface soil	
			Color	Texture
Regosols:				
Grading to Red-Yellow Podzolic Soils—				
Eustis	Beds of unconsolidated sand.	Gently sloping and sloping.	Weak red to dark grayish brown.	Sand
Huckabee	Beds of unconsolidated sand.	Gently sloping and sloping.	Very dark grayish brown to light gray.	Sand and loamy sand
Independence	Beds of unconsolidated sand.	Gently sloping	Dark grayish brown to brown.	Fine loamy sand to loamy sand.
Lakeland	Beds of unconsolidated sand.	Level to strongly sloping	Dark gray to light brownish gray.	Sand to fine sand
Grading to Low-Humic Gley Soils				
Klej	Unconsolidated sand and sandy clay.	Level or nearly level	Gray to black	Loamy sand to fine sandy loam.
Alluvial Soils:				
Chewacla	Alluvium	Level or nearly level	Grayish brown to gray	Silt loam to silty clay loam.
Congaree	Alluvium	Level or nearly level	Dark brown	Silt loam to fine sandy loam.

Red-Yellow Podzolic soils

The Red-Yellow Podzolic great soil group is made up of well-drained, acid soils that have well-developed profiles. The soils have thin, organic (A_0) and organic-mineral (A_1) horizons that overlie a light-colored, bleached (A_2) horizon. The A_2 horizon rests on a more clayey, red, yellowish-red, or yellow B horizon. The parent materials are all more or less siliceous. Coarse, reticulate streaks or mottles of red, yellow, brown, and light gray are characteristic of deep horizons of certain of the Red-Yellow Podzolic soils that are underlain by a thick layer of parent material.

In Darlington County the soils that most nearly fit the central concept of Red-Yellow Podzolic soils are the Kalmia, Gilead, Marlboro, Norfolk, Ruston, Cahaba, Caroline, and Vaucluse. The Dunbar, Izagora, Lynchburg, Goldsboro, Flint, and Wahee soils are classified as Red-Yellow Podzolic soils but intergrade toward Low-Humic Gley soils.

Red-Yellow Podzolic soils have formed under deciduous, coniferous, or mixed forests in a humid, warm-temperate climate. Under such conditions the decomposition of organic matter and the leaching of plant nutrients is rapid. Consequently, the soils are strongly to very strongly acid and are low in calcium, magnesium, and other bases. The clay fraction is often dominated by kaolinite. It generally contains moderate to large amounts of free iron oxides or hydroxides, or it may contain small amounts of aluminum. Hydrous mica, montmorillonite, or both may form part of the clay fraction in some of the soils. The base exchange capacity of these soils ranges from 8 to 20 milliequivalents (meq.) per 100 grams with a base saturation of less than 35 percent but generally averaging about 15 percent.

Differences in morphology among the Red-Yellow Podzolic soils in the county are largely, but not entirely, associated with the nature of the parent materials, especially with their texture. In cultivated areas the soil materials in the A_0 and A_1 horizons have been mixed so that they are no longer distinguishable. Where accelerated erosion has occurred, much or all of the A horizon may have been removed. In a few members of the group, especially in the more sandy soils, the horizon that has reticulate streaks or mottles may be absent.

As an example of this great soil group, the following describes a profile of Norfolk sandy loam in a cultivated field, 1 mile north of the junction of State Highways 34 and 151:

A_p 0 to 7 inches, grayish-brown (5YR 5/2) sandy loam; weak, fine, crumb structure; very friable; has a few concretions on the surface; pH 7.0; abrupt, smooth lower boundary.

A_2 7 to 13 inches, pale-brown (10YR 6/3), light sandy loam; weak, fine, crumb structure; very friable; pH 5.5; clear, smooth lower boundary.

B_1 13 to 16 inches, brownish-yellow (10YR 6/6), light sandy clay loam; weak, medium, subangular blocky structure; some penetration of A_2 material into this horizon; many fine pores; pH 5.3; clear, smooth lower boundary.

B_2 16 to 34 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; friable; thin, continuous clay films; pH 5.8; gradual, smooth lower boundary.

B_3 34 to 44 inches, brownish-yellow (10YR 6/6) sandy clay loam; common, medium, distinct mottles of yellowish red (5YR 5/8) and strong brown (7.5YR 5/6) that appear to be the beginnings of soft concretions; weak, medium, angular and subangular blocky structure; friable when moist, but slightly hard when dry; pH 6.0; gradual, smooth lower boundary.

C 44 to 52 inches, brownish-yellow (10YR 6/8) sandy clay loam mottled with strong brown and yellowish red; mottles appear to be the beginning of concretions; massive; friable; pH 6.0.

relationships of soil series—Continued

AZONAL

Subsoil		Natural soil drainage	Permeability	Available moisture capacity
Color	Texture			
Red to yellowish red	Sand to loamy sand	Excessive	Rapid	Low.
Yellowish brown to pale yellow	Loamy sand to sand	Excessive	Very rapid	Low.
Yellowish red to strong brown	Loamy sand to sandy loam	Excessive	Rapid	Low.
Pale yellow to yellowish brown	Sand to sandy loam	Excessive	Rapid	Low.
Brown to grayish brown mottled with yellowish brown and light gray.	Loamy sand to sand	Somewhat poor	Moderate	Low.
Dark grayish brown	Silt loam to silty clay	Somewhat poor	Moderate	High.
Dark reddish brown	Fine sandy clay to sandy clay	Good	Moderately rapid	High.

In color, the Kalmia, Gilead, and Marlboro soils are similar to the Norfolk soils. Of these, the profile of the Kalmia soils is the most nearly like that of the Norfolk soils. The Kalmia soils, however, have formed on stream terraces, are generally underlain by stratified sandy material, and are somewhat younger than the Norfolk soils. The Gilead soils are sometimes referred to as the "Norfolk soils" of the Sand Hill section. They are fairly extensive in this county. Generally, their profiles are not so well developed as those of the Gilead soils in other parts of the State. The Gilead soils differ from the Norfolk soils chiefly in having a compact lower B horizon. The Marlboro soils have a thinner A horizon than the Norfolk soils and a somewhat finer textured B horizon.

The Ruston, Cahaba, Caroline, and Vaucluse soils are the redder members of the Red-Yellow Podzolic great soil group in this county. The Ruston and Cahaba soils are similar to the Norfolk in texture and consistence. The Ruston soils occur near the Norfolk soils and have formed from upland parent materials. The Cahaba soils, on the other hand, have formed in more recent materials deposited on stream terraces. They resemble the Kalmia soils closely but are redder.

The Ruston and Caroline soils are similar in appearance, but the Caroline soils have finer textured B and C horizons than the Ruston. The Vaucluse soils have a profile similar to that of the Ruston soils and are sometimes referred to as the "Ruston soils" of the Sand Hill section. They differ from the Ruston soils in having a profile that is somewhat more variable in thickness and in having a compact lower B or upper C horizon.

The Dunbar, Izagora, Lynchburg, Goldsboro, Flint, and Wahee soils have characteristics of the Red-Yellow Podzolic soils, but they also have characteristics similar to those of the soils in the Low-Humic Gley great soil group. Of the characteristics resembling those of the Low-Humic Gley soils, the mottling and gray color are generally associated with wetness. The degree of expression of these characteristics has not been strong enough to warrant placing these soils in the Low-Humic Gley great soil group. They are, therefore, designated in this report as Red-Yellow Podzolic soils intergrading to Low-Humic Gley soils. All of these soils have characteristics associated with wetness, but such characteristics are more strongly expressed in the somewhat poorly drained soils, especially in the upper part of the B horizon.

The soils of the Dunbar, Izagora, and Lynchburg series are somewhat poorly drained. Except for poorer drainage, the Dunbar soils are similar to the Marlboro, the Izagora are similar to the Kalmia, and the Lynchburg are similar to the Norfolk soils. The Goldsboro and the Flint soils are moderately well drained, and the Wahee soils are moderately well drained to well drained. Of these, the Goldsboro soils are similar to the Norfolk soils. The Flint and Wahee are terrace soils and are similar to the Kalmia and Cahaba soils, respectively, but they have formed in finer textured sediments. The Goldsboro soil described in the section, Soil Series and Mapping Units, is an example of a Red-Yellow Podzolic soil intergrading to Low-Humic Gley.

Podzols

Podzols are soils that, under natural conditions, have profiles consisting of a surface organic mat, a very thin, organic-mineral horizon, a thicker, light-colored, leached horizon, and a darker, illuvial horizon. In the darker, illuvial horizon, either humus or humus and sequioxides have accumulated. Typically, some humus and iron or iron and aluminum have been removed from the leached horizon and deposited in the illuvial horizon. Podzols have formed under coniferous forest, under mixed conif-

erous and deciduous forest, or under heath vegetation. Most Podzols occur in humid, cool-temperate regions. Limited areas also occur in humid, warm-temperate zones, especially in highly siliceous materials, such as the marine sands consisting largely of quartz.

The Lakewood series is the only member of the Podzol great soil group in Darlington County, and it is represented by only one soil. A profile of this soil is described in the section, Soil Series and Mapping Units.

Low-Humic Gley soils

The Low-Humic Gley great soil group is made up of poorly drained and very poorly drained soils. The soils have thin surface horizons that are moderately high in organic matter. These horizons overlie mottled gray and brown, gleylike mineral horizons with a low degree of textural differentiation. The soil-development process is gleization. In this county the Grady, Leaf, Coxville, Myatt, Rains, Plummer, and Wehadkee soils are in the Low-Humic Gley great soil group.

The soils of this group have formed in acid marine sediments under a forest cover of loblolly pine and hardwoods that included sweetgum, blackgum, maple, beech, and various kinds of oaks. They have characteristics that reflect more strongly the influence of nearly level relief, a high water table, and impeded drainage than the effects of climate and vegetation. Their surface soils range in color from light gray to grayish brown. The subsoils range in color from mottled yellow, brown, and gray to dominantly gray, and in texture, from loamy sand to sandy clay or clay.

As an example of the Low-Humic Gley soils in Darlington County, the following describes a profile of Coxville sandy loam in a cultivated field, 3 miles northeast of Darlington:

A_p 0 to 5 inches, dark-gray (5Y 4/1), very friable sandy loam; weak, fine, crumb structure.

B_{1g} 5 to 10 inches, gray (5Y 5/1), friable sandy clay loam; has a few, fine, distinct mottles of dark yellowish brown (10YR 4/4); moderate, medium, subangular blocky structure.

B_{2g} 10 to 32 inches, gray (5Y 5/1), friable sandy clay; has common, fine, distinct mottles of dark yellowish brown (10YR 4/4); moderate, medium, subangular blocky structure.

C_g 32 inches+, gray (5Y 5/1), friable sandy clay with mottles of yellow and brown.

The Grady and Leaf soils are similar to the Coxville soils in texture and in drainage and consistence. The Grady soils have formed primarily in ponded areas. In many places they lack the red mottling characteristic of the Coxville soils. In contrast, the Leaf soils have formed on stream terraces.

The Myatt and Rains soils are similar in texture and in structure and consistence. The Myatt soils have formed on stream terraces, however, and in many places are underlain by more sandy material than the Rains soils. The Plummer soils have a texture of loamy sand or sand throughout the profile. They have light-colored surface layers and gray subsurface layers in which there is little or no change in clay content. The Wehadkee series is made up of very poorly drained soils that occur on first bottoms. Their surface layer consists of grayish-brown silt loam, and their subsoil, of mottled, gray silty clay.

Humic Gley soils

The Humic Gley great soil group consists of poorly drained to very poorly drained hydromorphic soils. The soils have moderately thick, dark-colored, organic-mineral horizons, underlain by mineral-gley horizons. The soil-development process has been gleization.

The Humic Gley soils in this county are members of the Okenee, Portsmouth, and Rutlege series. These soils have formed in acid marine sediments in areas where the ground water level was fluctuating, but relatively high, and runoff was very slow. The forest cover was chiefly loblolly pine, water-tolerant oak, sweetgum, red maple, blackgum, and yellow-poplar.

These soils have dark gray, very dark gray, or black surface soils. Their subsoils are gray and range from loamy sand to sandy clay loam in texture. In forested areas the content of organic matter in the A horizon ranges from about 5 to 15 percent. A profile of Portsmouth mucky loam, described in the section, Soil Series and Mapping Units, is representative of the Humic Gley soils in Darlington County.

The soils of the Okenee series are similar to those of the Portsmouth series, but they have formed on stream terraces. They are generally underlain by stratified material that in many places is coarser textured than that underlying the Portsmouth soils. The Rutlege soils have developed in sand and loamy sand. They have a very dark surface layer that is high in organic matter.

Regosols

Regosols are soils in which few or no clearly expressed soil characteristics have developed. They have formed in deep, unconsolidated, soft mineral deposits.

In Darlington County the soils in this group are members of the Eustis, Huckabee, Independence, Klej, and Lakeland series. The redder or stronger colors of the B horizons, as compared to the A and C horizons of the Eustis, Huckabee, Independence, and Lakeland soils, indicate that these soils intergrade toward the Red-Yellow Podzolic soils. The texture of the Klej soils is sand or loamy sand throughout. The Klej soils are somewhat poorly drained and are, therefore, considered to be grading toward the Low-Humic Gley great soil group. The profile of the Lakeland soil, described in the section, Soil Series and Mapping Units, is representative of the Regosols in this county.

The Eustis soils, in texture and in profile development, are similar to the Lakeland soils. They have a browner surface layer, however, and a redder subsoil.

The Huckabee soils are similar to the Lakeland soils in color, and the two series have profiles that are similar The Huckabee soils, however, have developed on stream terraces rather than on uplands. The Independence and Eustis soils are similar, but the Independence soils have developed on stream terraces rather than on uplands.

Alluvial soils

Alluvial soils are forming in transported and relatively recently deposited materials, or alluvium. They are characterized by a weak modification, or none, of the original material by soil-forming processes.

In Darlington County the Chewacla and Congaree soils belong to the Alluvial great soil group. These soils are on flood plains and either receive or lose material during floods. The alluvium in which they are forming was derived mainly from the Piedmont uplands; the materials are acid, are more or less sorted, and are medium to fine in texture. The native vegetation was made up of various kinds of hardwoods but included some pine. The Chewacla soil described in the section, Soil Series and Mapping Units, is representative of Alluvial soils in this county.

Miscellaneous land types

In addition to the soils of the various series classified in the county, there were several miscellaneous land types mapped. These land types are Gullied land; Local alluvial land; Marsh; Mixed alluvial land; Pits and dumps; Gently sloping and sloping land, sandy and clayey sediments; and Swamp. All of these miscellaneous land types are described in the section, Soil Series and Mapping Units.

Additional Facts About the County

In this section the settlement and development of Darlington County is discussed. Information is also given about the climate and agriculture.

Settlement and Development

The first colonists who came to this area in 1701 found thick forests of pine and of oak, hickory, and other hardwoods (*10*). Game was plentiful in the forests, and fish were abundant in the streams and lakes. The tribes of Indians who lived in the area were dominated by the Cheraws. Later, however, they were dominated by the Catawba Indians who came into the area from the north. The tribes maintained a peaceful alliance with each other and were friendly toward the colonists.

The first settlements centered around trading posts, where barter was carried on with the Indians. Later, Welsh from Pennsylvania and Delaware were induced to settle along the navigable rivers and were granted land on the river bottoms occupied by fertile, alluvial soils. The Welsh established their first settlement, about 1736, near the present town of Society Hill. Soon, settlers from other areas—French Huguenots, Scotch-Irish, English, and Germans—followed.

The bottom lands along the Pee Dee River were the first areas to be used for cultivated crops. Besides being close to the river, which was the only means of transportation, the soils of the bottom lands were considered the most suitable for agriculture. The Welsh were disappointed, however, when they attempted to grow hemp and flax, for the soils and climate were not favorable for these crops. They were more successful in growing wheat and corn.

The area was well suited to pasture. To obtain additional cash income, the early settlers captured and sold wild cattle and hogs that roamed through the forests and meadows. For a time, the area was noted for the meat and breadstuffs that were exported.

The county had a surplus of timber, for there was no market for it. When new ground was needed for crops, neighbors helped each other by holding logrollings.[4] These consisted of cutting the large trees, rolling them together, and burning them. Some timber was sawed at the small sawmills for home use. Heart pine or cypress provided the material for most of the buildings. Split pine rails were used to protect the fields from wild livestock.

About 1747, indigo was introduced as a crop. For half a century, until it was supplanted by cotton, it was the principal cash crop of the area. A bounty was allowed by the English Parliament for all the indigo exported to England. Fortunes were made by growing and exporting indigo.

By the time of the Revolution the early settlers knew that the sites near the river that they had chosen for their homes were not desirable because they were low and wet. They, therefore, moved their homes to higher ground along the old Camden road that follows the sandy ridge from Society Hill to Camden.

After the Revolution, the settlers began to grow cotton on a large scale. Some of them soon became wealthy. Much of their wealth was invested in Negro slaves who cleared the land and performed the rough labor required for growing cotton. The larger plantations were independent communities. On these, nearly everything needed by the planter and slaves was produced. Any surplus, together with the cotton grown on the plantation, was shipped to the coast by boat. Poleboats and small steamers provided regular transportation along the Pee Dee River.

After the Civil War, conditions changed completely. The emancipated slaves were thrown on their own resources. They had little knowledge of how to farm successfully. Compelled to rely upon the white man for assistance and advice, they drifted into a tenant system of farming. Cotton continued to be the principal crop and increased in acreage. Its increased production caused a decrease in price. Many prominent planters were unable to adjust to the changed conditions and left the area.

About 1887, bright tobacco was introduced as a crop. It proved a valuable addition to the economy of the area.

Climate

Darlington County has mild winters and hot summers. Table 11, compiled from records of the United States Weather Bureau at Darlington, gives normal monthly, seasonal, and annual temperatures typical of those prevailing in the county.

The climate is favorable for general farming. The summers are long and hot, but extremely hot periods are of short duration. The average frost-free period is 220 days. The average date of the last killing frost in spring is March 29, and the average date of the first in fall is November 4.

The period of greatest rainfall is in summer when moisture is needed by growing crops; the period of least rainfall is late in fall. This distribution of rainfall is favorable for planting and harvesting crops.

[4] According to A. H. ROGERS, of Society Hill, as told to the author.

TABLE 11.—*Temperature and precipitation at Darlington, Darlington County, S.C.*

[Elevation, 175 feet]

Month	Temperature [1]			Precipitation [2]			
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1933)	Wettest year (1928)	Average snowfall
	° F.	° F.	° F.	Inches	Inches	Inches	Inches
December	45.6	83	6	3.10	0	2.00	0.4
January	45.6	82	6	2.95	1.07	1.13	.7
February	46.6	86	4	3.48	2.22	7.51	.7
Winter	45.9	86	4	9.53	3.29	10.64	1.8
March	54.2	99	14	3.13	.80	4.53	.1
April	62.4	97	25	3.41	.93	4.10	(3)
May	71.0	103	38	3.51	3.58	4.43	0
Spring	62.5	103	14	10.05	5.31	13.06	.1
June	77.8	103	45	5.05	4.15	5.57	(3)
July	80.3	106	53	5.27	3.20	7.67	0
August	79.1	104	51	4.97	3.21	4.95	0
Summer	79.1	106	45	15.29	10.56	18.19	0
September	74.8	109	40	4.48	2.15	20.53	0
October	63.7	99	24	2.58	.46	2.35	0
November	52.9	87	14	2.12	.79	.75	(3)
Fall	63.8	109	14	9.18	3.40	23.63	0
Year	62.8	109	4	44.05	22.56	65.52	1.9

[1] Average temperature based on a 56-year record, through 1955; highest and lowest temperatures on a 50-year record, through 1952.
[2] Average precipitation based on a 61-year record, through 1955; wettest and driest years based on a 56-year record, in the period 1896–1955; snowfall based on a 54-year record, through 1952.
[3] Trace. (Beginning with 1948, snowfall totals include sleet and hail.)

Agriculture

In this section the general pattern of agriculture in Darlington County is discussed. The statistics given are from reports published by the U.S. Bureau of the Census.

Land use

In 1954, about 77.2 percent of the county, or 268,974 acres, was in farms. There were 3,887 farms in the county. The average size of each farm was 69.2 acres. The acreage of farmland, by use, is listed as follows:

	Acres
Cropland, total	144,170
Harvested	119,471
Pastured	10,001
Not harvested or pastured	14,698
Woodland, total	109,648
Pastured	12,553
Not pastured	97,095
Other pasture (not cropland and not woodland)	7,873
Other land (including farmsteads, roads, and wasteland)	7,283

Farm income

The early settlers depended on cotton as their main source of income. By 1900, tobacco had become important; cotton and tobacco were the main cash crops. Corn and small grains were grown, but they were used on the farm to provide feed for livestock raised for home use. After about 1920, when the boll weevil began to cause severe damage to the cotton industry, the larger part of the farm income came from tobacco.

Acreage controls were placed on cotton, tobacco, and wheat in the early 1930's; as a result, farmers turned to more diversified farming. Nonallotted crops were planted, and more livestock was raised. During World War II, beef was in short supply, and the price of cattle was high. Consequently, beef cattle and other livestock continued to gain as a source of income for Darlington County farmers. After the war, allotments were again placed on cotton, tobacco, and wheat; as a result, soybeans, oats, pasture, and small grains became important as a source of income.

In 1954, farmers in the county obtained about 92.4 percent of their income from field crops; 6.7 percent from livestock and livestock products; and 0.9 percent from forest products. Table 12 shows the acreage of the principal crops grown in the county in stated years.

TABLE 12.—*Acreage of the principal crops*

Crops	1929	1939	1949	1954
	Acres	Acres	Acres	Acres
Cotton harvested	52,493	32,436	40,024	33,911
Corn for all purposes	36,333	52,270	37,420	29,591
Oats threshed or combined	3,991	5,062	8,830	20,963
Soybeans (grown alone)	305	1,153	2,564	4,833
Tobacco harvested	10,869	9,310	8,800	10,110
Wheat threshed or combined	2,152	5,596	8,200	6,206
Hay (total)	8,995	20,175	11,024	11,494

Farm equipment and expenditures

In 1954, 3,696 farms had electricity and 766 had telephones. There was piped running water on 1,575 farms. An estimated 967 farms had home freezers.

In the same year there were 1,578 tractors on 1,186 farms, 1,208 motortrucks on 1,084 farms, and 3,232 automobiles on 2,756 farms. Other mechanical equipment included 29 field-forage harvesters on 28 farms, 33 cornpickers on 30 farms, and 236 grain combines on 209 farms. There were also 61 pick-up hay balers on 58 farms.

Darlington County farmers used 30,620 tons of commercial fertilizer in 1954. In addition, they used 1,087 tons of lime.

Glossary (7)

Acidity. The degree of acidity of the soil expressed in pH values, or in words, as follows:

	pH		pH
Extremely acid	below 4.5	Neutral	6.6–7.3
Very strongly acid	4.5–5.0	Mildly alkaline	7.4–7.8
Strongly acid	5.1–5.5	Moderately alkaline	7.9–8.4
Medium acid	5.6–6.0	Strongly alkaline	8.5–9.0
Slightly acid	6.1–6.5	Very strongly alkaline	9.1 and higher

Alluvial soils. Soils developing from transported and fairly recently deposited material (alluvium) with little or no modification of the original materials by soil-forming processes.

Alluvium. Soil materials, as sand, silt, or clay, deposited on land by streams.

Consistence, soil. The combination of properties of soil material that determine its resistance to crushing and its ability to be molded or changed in shape. Consistence depends mainly on the forces of attraction between soil particles. Terms used to describe consistence of soil material when wet are: *Nonsticky, slightly sticky, sticky, very sticky, nonplastic, slightly plastic, plastic,* and *very plastic.*

Terms used to describe consistence of the soil material when moist are: *Loose, very friable, friable, firm, very firm,* and *extremely firm.* Terms used to describe the consistence of the soil material when dry are: *Loose, soft, slightly hard, hard, very hard, and extremely hard.*

Erosion. The wearing away or removal of soil materials by water or wind.

First bottom. The normal flood plain of a stream; nearly flat areas along streams that are subject to overflow.

Green-manure crop. Any crop grown and plowed under for the purpose of improving the soil.

Horizon, soil. A layer of the soil, approximately parallel to the soil surface and having well-defined characteristics, but different in appearance and characteristics from the layers above and below it.

Horizon A. The surface horizon of the soil mass having maximum biological activity, or eluviation (removal of materials dissolved or suspended in water), or both. Generally, this horizon is divided into two or more subhorizons.

Horizon B. A soil horizon normally beneath an A horizon, or surface soil, to which materials have been added by percolating water; the subsoil. This horizon also may be divided into several subhorizons, depending on the color, structure, consistence, and character of the material deposited.

Horizon C. A layer of unconsolidated material underlying the B horizon; the substratum; usually the parent material.

Internal drainage. The movement of water through the soil profile. This rate is affected by the texture of the surface soil and subsoil and by the height of the water table, either permanent or perched. Relative terms for expressing internal drainage are: *Very rapid, rapid, medium, slow, very slow,* and *none.*

Leaching, soil. Removal of materials in solution.

Mottling, soil. Irregularly marked with spots of different color.

Natural drainage. Refers to those conditions that existed during the development of the soil, as opposed to altered drainage. Drainage is generally altered by artificial means or by irrigation but may be altered by sudden deepening of channels or sudden blocking of drainage outlets. The following relative terms are used to express natural drainage: *Excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.*

Normal soil. A soil that has a profile in equilibrium or nearly in equilibrium with its environment. It has formed under good, but not excessive, drainage from parent material of mixed mineralogical, physical, and chemical composition that has been in place long enough to express the full effects of climate and living matter.

Permeability. That quality of the soil that enables water or air to move through it.

Phase, soil. A subdivision of the soil type covering variations that are chiefly in such external characteristics as relief, stoniness, and erosion.

Plant nutrients. Any element taken in by a plant, essential to its growth, and used by it in elaboration of its food and tissue.

Profile, soil. A vertical section of the soil from the surface into the parent material.

Reaction. See Acidity.

Relief. The elevations or inequalities of the land surface and the pattern thus formed.

Runoff. Refers to the amount of water removed by flow over the surface of the soil. The amount and rapidity of runoff are affected by factors, such as texture, structure, and porosity of the surface soil; the plant cover; the prevailing climate; and the slope. The degree of runoff is expressed by the terms, *very rapid, rapid, medium, slow, very slow,* and *ponded.*

Series, soil. A group of soils that have the same profile characteristics and the same general range in color, structure, consistence, and sequence of horizons; the same general conditions of relief and drainage; and, usually, a common or similar origin and mode of formation. A group of soil types similar in all respects except for the texture of the surface soil.

Structure, soil. The arrangement of the individual grains and aggregates that make up the soil mass; may refer to the natural arrangement of the soil when in place and undisturbed or to the soil at any degree of disturbance.

Subsoil. Technically, the B horizon; commonly, that part of the profile below plow depth.

Substratum. Material underlying the subsoil.

Surface soil. Technically, the A horizon; commonly, that part of the upper profile usually stirred by plowing.

Terrace, geologic. An old, nearly level or undulating alluvial plain bordering a stream but seldom flooded; also called a second bottom.

Texture. Size of individual particles making up the soil mass. The various soil separates, sand, silt, and clay, determine texture. A coarse-textured soil is one that has a high content of sand; a fine-textured soil has a large proportion of clay.

Topsoil (engineering application). Soil material containing organic matter and suitable as a surfacing for shoulders and slopes.

Type, soil. A subdivision of the soil series based on the texture of the surface soil.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and generally lying at higher elevations than the alluvial plain or stream terrace.

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GUIDE TO MAPPING UNITS[1]

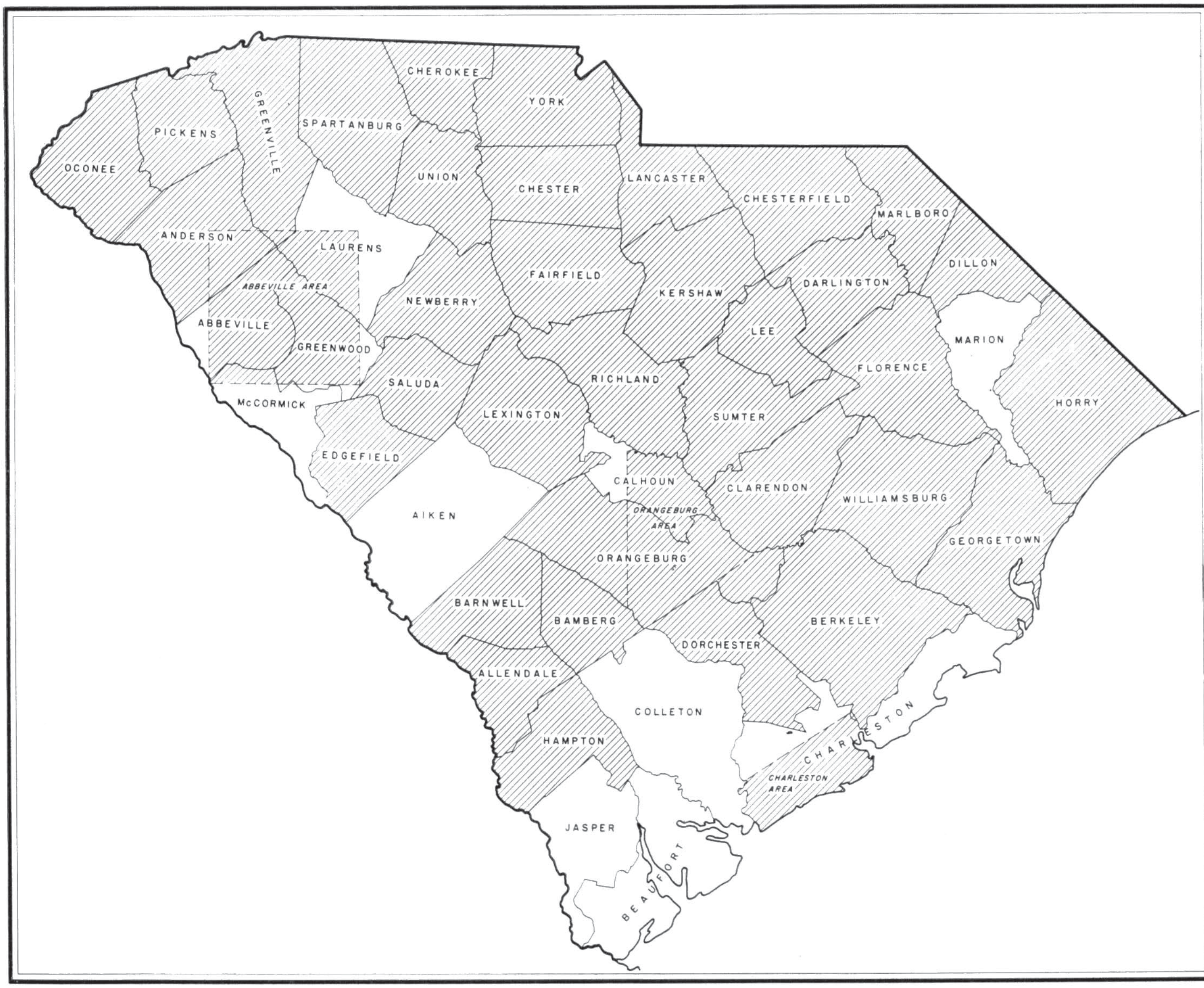
Symbol	Soil	Page	Capability unit	Page	Woodland group	Page
CaA	Cahaba fine sandy loam, level phase	52	I–1	9	2	32
CaB	Cahaba fine sandy loam, gently sloping phase	52	IIe–1	9	2	32
CfD2	Caroline fine sandy loam, eroded strongly sloping phase	52	VIe–2	18	6	33
Ch	Chewacla silt loam	53	IIIw–3	15	1	32
Cn	Congaree fine sandy loam	53	IIw–4	12	1	32
Co	Congaree silt loam	54	IIw–4	12	1	32
Cv	Coxville fine sandy loam	54	IIIw–2	15	3	32
Cx	Coxville sandy loam	54	IIIw–2	15	3	32
Df	Dunbar fine sandy loam	55	IIw–2	11	10	34
Ds	Dunbar sandy loam	55	IIw–2	11	10	34
EmB	Eustis loamy sand, gently sloping phase	56	IIIs–1	16	7	33
EsB	Eustis sand, gently sloping phase	56	IIIs–2	16	7	33
EsC	Eustis sand, sloping phase	56	IVs–1	17	7	33
FfA	Flint fine sandy loam, level phase	56	IIe–3	10	8	34
FfC	Flint fine sandy loam, sloping phase	57	IIIe–3	14	12	35
GaB	Gently sloping land, sandy and clayey sediments	57	VIIe–2	18	14	35
GdB	Gilead loamy sand, gently sloping thick surface phase	58	IIs–1	13	9	34
GdC	Gilead loamy sand, sloping thick surface phase	58	IIIe–4	14	9	34
GeB	Gilead sandy loam, gently sloping phase	58	IIe–4	11	2	32
GeC	Gilead sandy loam, sloping phase	58	IIIe–4	14	9	34
Go	Goldsboro sandy loam	59	IIw–2	11	10	34
Gr	Grady sandy loam	60	IIIw–2	15	3	32
Gu	Gullied land	60	VIIe–2	18	17	37
HbB	Huckabee loamy sand, gently sloping phase	61	IIIs–1	16	7	33
HcB	Huckabee sand, gently sloping phase	60	IIIs–2	16	7	33
HcC	Huckabee sand, sloping phase	61	IVs–1	17	7	33
InB	Independence loamy sand, gently sloping phase	61	IIIs–1	16	4	32
Iz	Izagora fine sandy loam	62	IIw–2	11	10	34
KaA	Kalmia loamy sand, level thick surface phase	63	IIs–1	13	9	34
KaB	Kalmia loamy sand, gently sloping thick surface phase	63	IIs–1	13	9	34
KsA	Kalmia sandy loam, level phase	62	I–1	9	2	32
KsB	Kalmia sandy loam, gently sloping phase	63	IIe–1	9	2	32
Ky	Klej loamy sand	63	IIIw–1	15	11	35
LaB	Lakeland sand, gently sloping phase	64	IIIs–2	16	7	33
LaC	Lakeland sand, sloping phase	65	IVs–1	17	13	35
LaD	Lakeland sand, strongly sloping phase	65	VIIs–1	18	15	36
LkA	Lakeland sand, level shallow phase	65	IIs–2	13	7	33
LkB	Lakeland sand, gently sloping shallow phase	65	IIIs–1	16	7	33
LkC	Lakeland sand, sloping shallow phase	65	IVs–1	17	7	33
Lo	Local alluvial land	66	IIw–1	11	1	32
Ls	Leaf fine sandy loam	66	IIIw–2	15	3	32
LwB	Lakewood sand, gently sloping phase	65	VIIs–1	18	16	36
Ly	Lynchburg sandy loam	67	IIw–2	11	10	34
MaA	Marlboro sandy loam, level phase	67	I–2	9	2	32
MaB	Marlboro sandy loam, gently sloping phase	68	IIe–2	9	2	32
Mr	Marsh	68	VIIw–1	18	(2)	--
Mx	Mixed alluvial land	68	VIIw–1	18	17	37
My	Myatt sandy loam	68	Vw–2	18	5	33
NfA	Norfolk fine sandy loam, level phase	70	I–1	9	2	32
NfB	Norfolk fine sandy loam, gently sloping phase	70	IIe–1	9	2	32
NoA	Norfolk loamy sand, level thick surface phase	70	IIs–1	13	9	34
NoB	Norfolk loamy sand, gently sloping thick surface phase	70	IIs–1	13	9	34
NoC	Norfolk loamy sand, sloping thick surface phase	70	IIIe–5	14	9	34
NoD	Norfolk loamy sand, strongly sloping thick surface phase	71	IVe–5	17	9	34
NsA	Norfolk sandy loam, level phase	69	I–1	9	2	32
NsB	Norfolk sandy loam, gently sloping phase	70	IIe–1	9	2	32
NsC	Norfolk sandy loam, sloping phase	70	IIIe–1	13	2	32
NtA	Norfolk sandy loam, level thin solum phase	70	I–1	9	9	34
NtB	Norfolk sandy loam, gently sloping thin solum phase	70	IIe–1	9	9	34
Ok	Okenee loam	71	IIIw–4	16	5	33
Pd	Pits and dumps	71	VIIe–2	18	17	37
Pm	Plummer loamy sand	72	Vw–2	18	5	33
Po	Portsmouth mucky loam	72	IIIw–4	16	5	33
Ps	Portsmouth sandy loam	73	IIIw–4	16	5	33
Ra	Rains sandy loam	73	Vw–2	18	5	33
RfA	Ruston fine sandy loam, level phase	74	I–1	9	2	32
RfB	Ruston fine sandy loam, gently sloping phase	74	IIe–1	9	2	32
RsA	Ruston sandy loam, level phase	73	I–1	9	2	32
RsB	Ruston sandy loam, gently sloping phase	74	IIe–1	9	2	32
RsC2	Ruston sandy loam, eroded sloping phase	74	IIIe–1	13	9	34
RtA	Ruston loamy sand, level thick surface phase	74	IIs–1	13	9	34
RtB	Ruston loamy sand, gently sloping thick surface phase	74	IIs–1	13	9	34
RtC	Ruston loamy sand, sloping thick surface phase	75	IIIe–5	14	9	34
Ru	Rutlege loamy sand	75	IIIw–4	16	5	33
Ry	Rutlege mucky loam	75	IIIw–4	16	5	33

See footnotes at end of table.

GUIDE TO MAPPING UNITS[1]

Symbol	Soil	Page	Capability unit	Page	Woodland group	Page
ScC	Sloping land, sandy and clayey sediments	57	VIIe-2	18	14	35
ScC2	Sloping land, sandy and clayey sediments, eroded phase	58	VIIe-2	18	14	35
Sw	Swamp	75	VIIw-1	18	17	37
VaB	Vaucluse loamy sand, gently sloping thick surface phase	76	IIs-1	13	14	35
VaC	Vaucluse loamy sand, sloping thick surface phase	76	IIIe-4	14	14	35
VsB	Vaucluse sandy loam, gently sloping phase	76	IIe-4	11	14	35
VsC	Vaucluse sandy loam, sloping phase	76	IIIe-4	14	14	35
VsC2	Vaucluse sandy loam, eroded sloping phase	76	IVe-4	17	14	35
VsD	Vaucluse sandy loam, strongly sloping phase	76	VIe-2	18	14	35
VsD2	Vaucluse sandy loam, eroded strongly sloping phase	76	VIIe-2	18	14	35
VsE	Vaucluse sandy loam, moderately steep phase	76	VIIe-2	18	14	35
Wa	Wahee sandy loam	77	IIe-3	10	8	34
Wf	Wahee very fine sandy loam	77	IIe-3	10	8	34
Wh	Wehadkee silt loam	77	VIIw-1	18	1	32

[1] Table 1, p. 19, gives estimated yields of the soils; table 2, p. 21, shows their relative suitability for stated crops; and table 9, p. 51, gives the acreage and the proportionate extent of the soils. To find the engineering properties of the soils see section beginning p. 37.
[2] Not suitable for trees.



Areas surveyed in South Carolina shown by shading.

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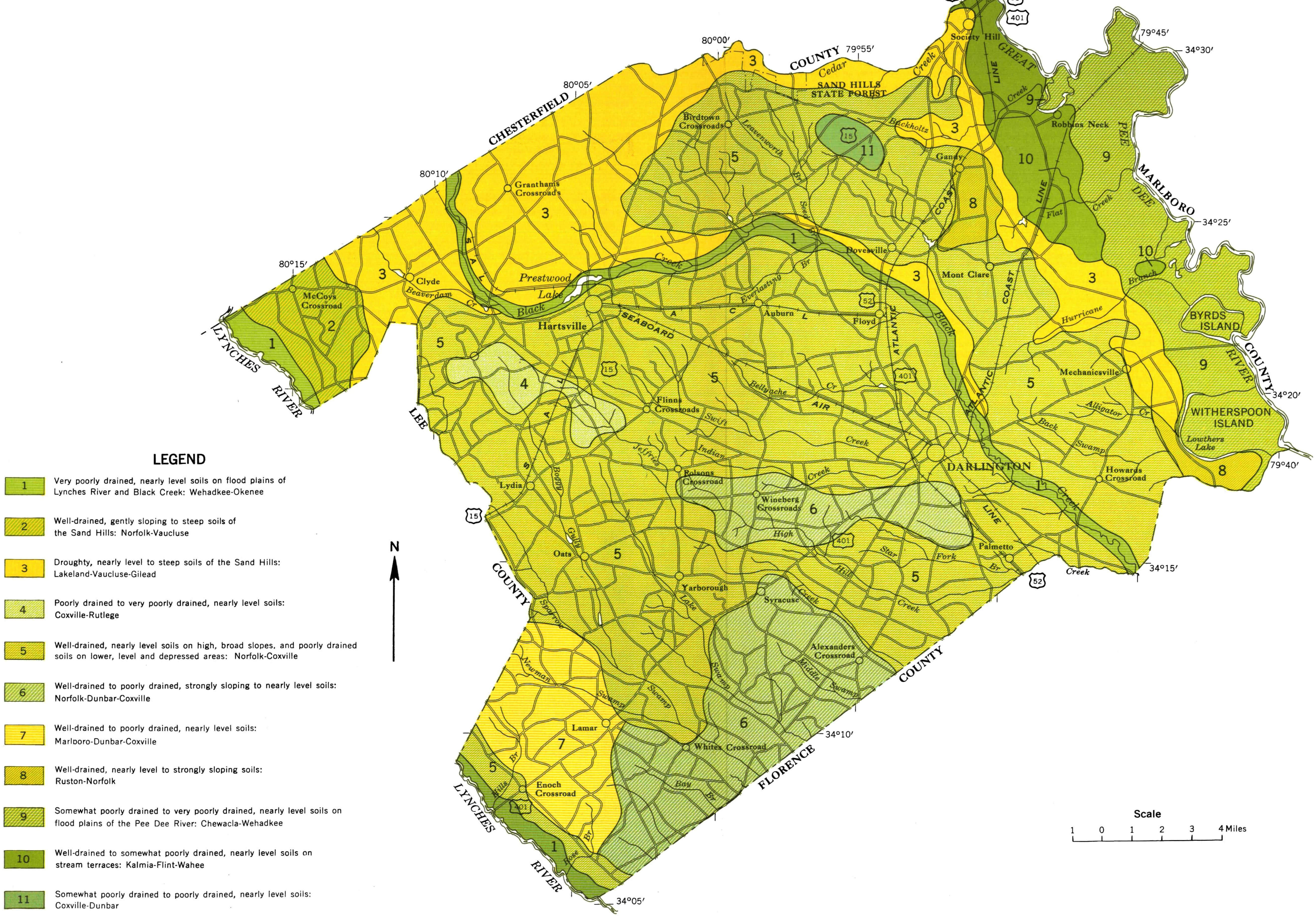
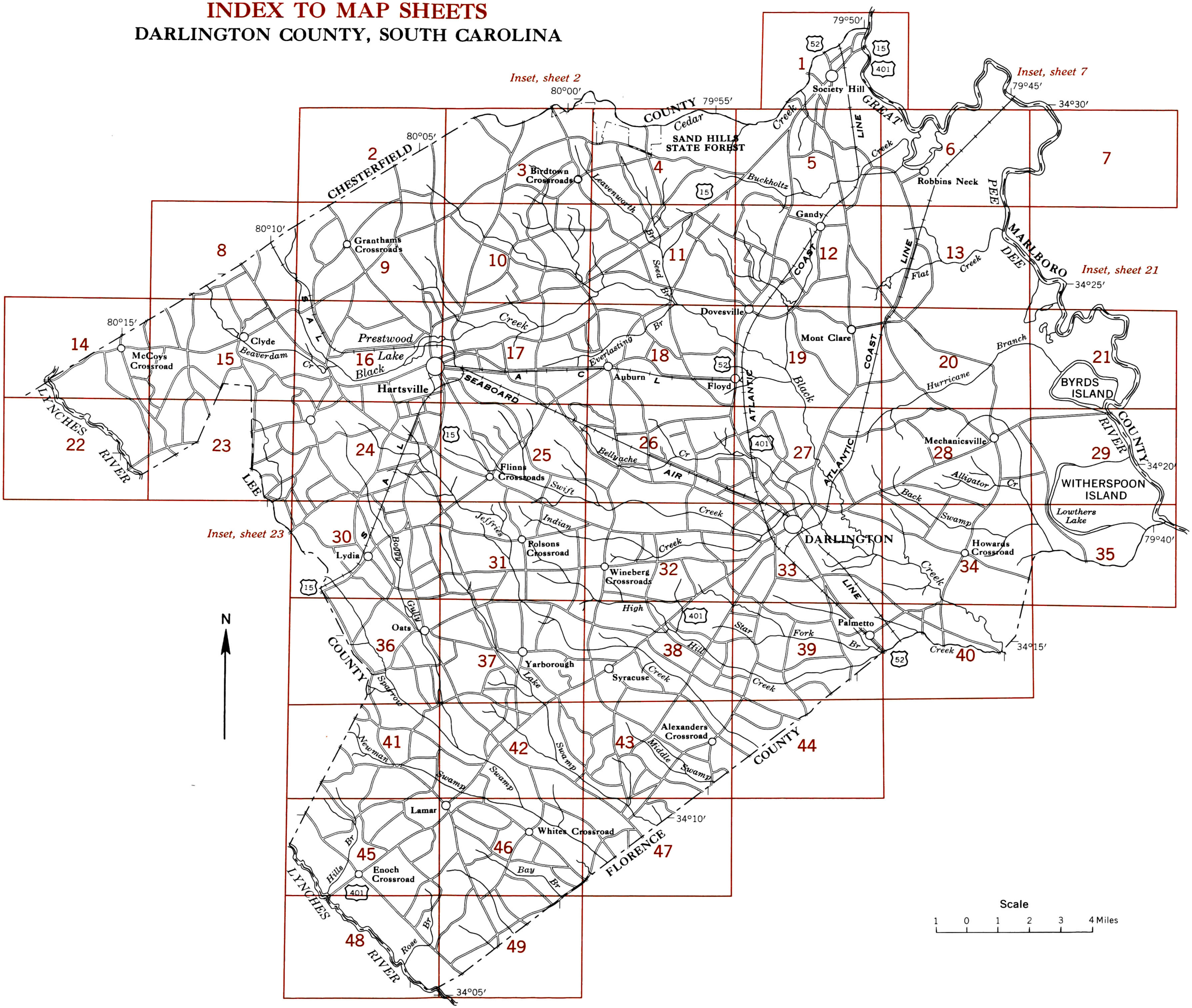
GENERAL SOIL MAP
DARLINGTON COUNTY, SOUTH CAROLINA



INDEX TO MAP SHEETS
DARLINGTON COUNTY, SOUTH CAROLINA



SOIL LEGEND

Each soil symbol consists of letters or a combination of letters and numbers. The first capital letter is the initial of the soil series name. The second capital letter, if there is one, shows the range of slope. It is given only if slope forms part of the soil name. Most symbols without a slope letter indicate nearly level soils. Gullied land and some of the Pits and dumps range from gently sloping to steep. A final number indicates an eroded soil.

SYMBOL	NAME
CaA	Cahaba fine sandy loam, level phase
CaB	Cahaba fine sandy loam, gently sloping phase
CfD2	Caroline fine sandy loam, eroded strongly sloping phase
Ch	Chewacla silt loam
Cn	Congaree fine sandy loam
Co	Congaree silt loam
Cv	Coxville fine sandy loam
Cx	Coxville sandy loam
Df	Dunbar fine sandy loam
Ds	Dunbar sandy loam
EmB	Eustis loamy sand, gently sloping phase
EsB	Eustis sand, gently sloping phase
EsC	Eustis sand, sloping phase
FfA	Flint fine sandy loam, level phase
FfC	Flint fine sandy loam, sloping phase
GaB	Gently sloping land, sandy and clayey sediments
GdB	Gilead loamy sand, gently sloping thick surface phase
GdC	Gilead loamy sand, sloping thick surface phase
GeB	Gilead sandy loam, gently sloping phase
GeC	Gilead sandy loam, sloping phase
Go	Goldsboro sandy loam
Gr	Grady sandy loam
Gu	Gullied land
HbB	Huckabee loamy sand, gently sloping phase
HcB	Huckabee sand, gently sloping phase
HcC	Huckabee sand, sloping phase
InB	Independence loamy sand, gently sloping phase
Iz	Izagora fine sandy loam
KaA	Kalmia loamy sand, level thick surface phase
KaB	Kalmia loamy sand, gently sloping thick surface phase
KsA	Kalmia sandy loam, level phase
KsB	Kalmia sandy loam, gently sloping phase
Ky	Klej loamy sand
LaB	Lakeland sand, gently sloping phase
LaC	Lakeland sand, sloping phase
LaD	Lakeland sand, strongly sloping phase
LkA	Lakeland sand, level shallow phase
LkB	Lakeland sand, gently sloping shallow phase
LkC	Lakeland sand, sloping shallow phase
Lo	Local alluvial land
Ls	Leaf fine sandy loam
LwB	Lakewood sand, gently sloping phase
Ly	Lynchburg sandy loam
MaA	Marlboro sandy loam, level phase
MaB	Marlboro sandy loam, gently sloping phase
Mr	Marsh
Mx	Mixed alluvial land
My	Myatt sandy loam
NfA	Norfolk fine sandy loam, level phase
NfB	Norfolk fine sandy loam, gently sloping phase
NoA	Norfolk loamy sand, level thick surface phase
NoB	Norfolk loamy sand, gently sloping thick surface phase
NoC	Norfolk loamy sand, sloping thick surface phase
NoD	Norfolk loamy sand, strongly sloping thick surface phase
NsA	Norfolk sandy loam, level phase
NsB	Norfolk sandy loam, gently sloping phase
NsC	Norfolk sandy loam, sloping phase
NtA	Norfolk sandy loam, level thin solum phase
NtB	Norfolk sandy loam, gently sloping thin solum phase
Ok	Okenee loam
Pd	Pits and dumps
Pm	Plummer loamy sand
Po	Portsmoutn mucky loam
Ps	Portsmouth sandy loam
Ra	Rains sandy loam
RfA	Ruston fine sandy loam, level phase
RfB	Ruston fine sandy loam, gently sloping phase
RsA	Ruston sandy loam, level phase
RsB	Ruston sandy loam, gently sloping phase
RsC2	Ruston sandy loam, eroded sloping phase
RtA	Ruston loamy sand, level thick surface phase
RtB	Ruston loamy sand, gently sloping thick surface phase
RtC	Ruston loamy sand, sloping thick surface phase
Ru	Rutlege loamy sand
Ry	Rutlege mucky loam
ScC	Sloping land, sandy and clayey sediments
ScC2	Sloping land, sandy and clayey sediments, eroded phase
Sw	Swamp
VaB	Vaucluse loamy sand, gently sloping thick surface phase
VaC	Vaucluse loamy sand, sloping thick surface phase
VsB	Vaucluse sandy loam, gently sloping phase
VsC	Vaucluse sandy loam, sloping phase
VsC2	Vaucluse sandy loam, eroded sloping phase
VsD	Vaucluse sandy loam, strongly sloping phase
VsD2	Vaucluse sandy loam, eroded strongly sloping phase
VsE	Vaucluse sandy loam, moderately steep phase
Wa	Wahee sandy loam
Wf	Wahee very fine sandy loam
Wh	Wehadkee silt loam

Soils surveyed 1955-57 by W. Lee Colburn, W. J. Camp, W. H. Stuckey, R. W. Craft, M. W. Sullivan, and F. L. Green, Soil Conservation Service. Correlation by Glenn H. Robinson, Soil Conservation Service, and W. B. Boykin, South Carolina Agricultural Experiment Station.

Soil map constructed 1959 by Cartographic Division, Soil Conservation Service, USDA, from 1957 aerial photographs. Controlled mosaic based on South Carolina plane coordinate system, north zone, Lambert conformal conic projection, 1927 North American datum.

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Roads
- Good motor
- Poor motor
- Divided highway
- Marker, U. S. (33)

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferry
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mine and Quarry
- Shaft
- Dump
- Prospect

Pits, gravel or other

Power line

Pipeline

Cemetery

Dam

Levee

Tank

Oil well

Windmill

Canal lock (point upstream)

BOUNDARIES

- National or state
- County
- Township, civil
- Township, U. S.
- Section line, corner
- City (corporate)
- Reservation
- Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass.
- Crossable with tillage implements
- Not crossable with tillage implements

Canals and ditches — CANAL, DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells — flowing

Springs

Marsh

Wet spot

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions (Large, Small)
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

- Soil type outline and symbol — Dx
- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land

Erosion
- Wind, moderate
- Wind, severe
- Blowout
- Wind hummock
- Overblown soil

Gullies

Areas of alkali and salts
- Strong — A
- Moderate — M
- Slight — S
- Free of toxic effect — F

Sample location — 26

Saline spot

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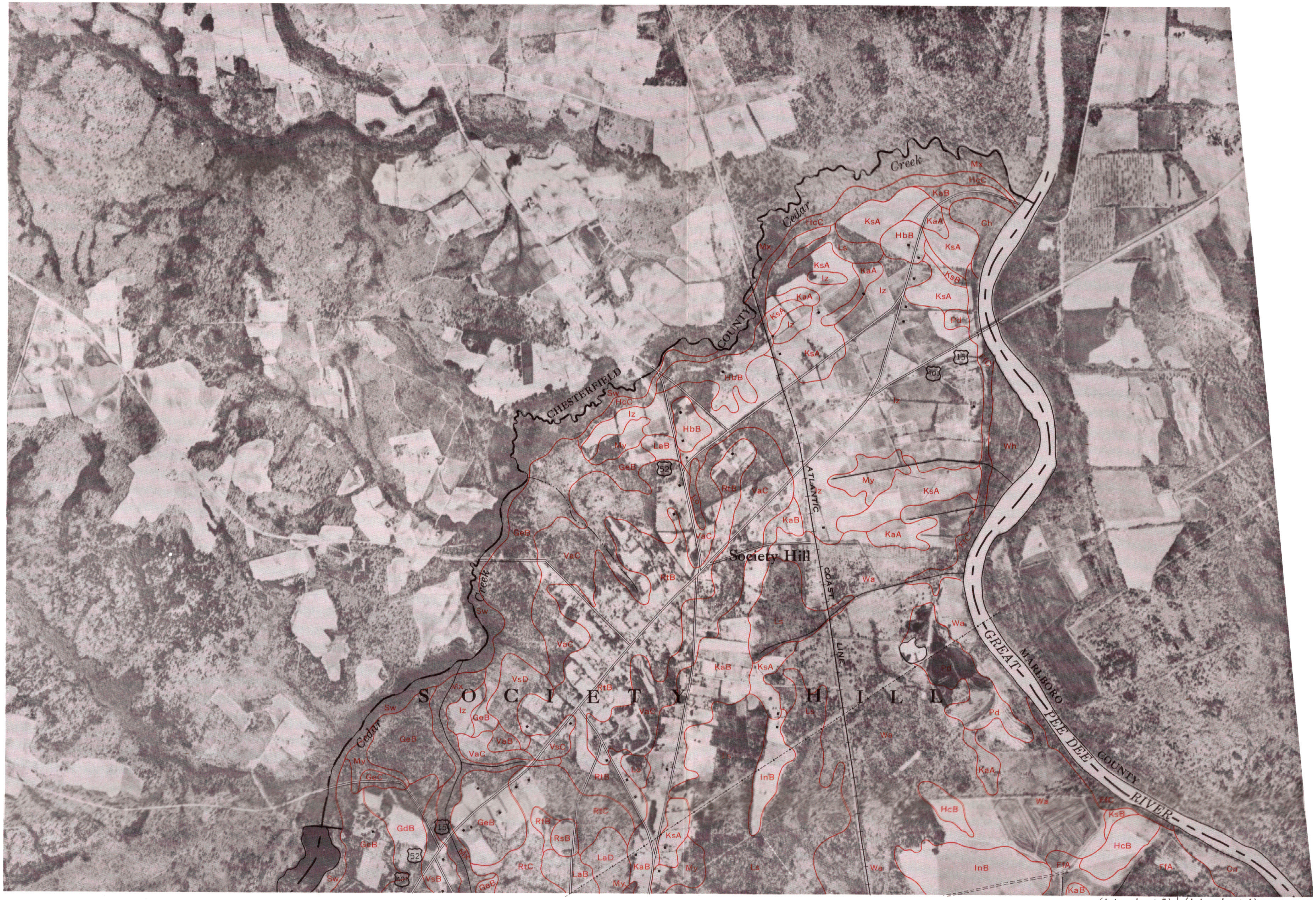
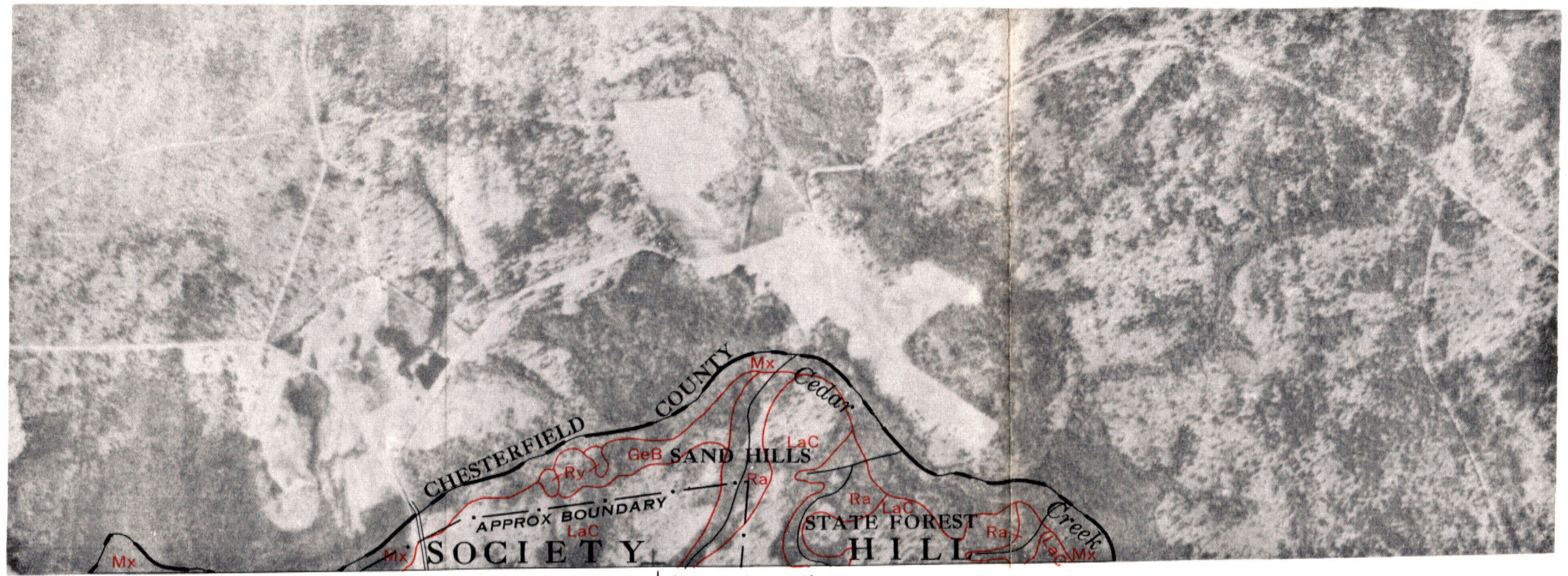


0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 5) | (Joins sheet 6)

2

N



(Joins sheet 3) | (Joins sheet 4)

(Joins sheet 3)

(Joins sheet 9)

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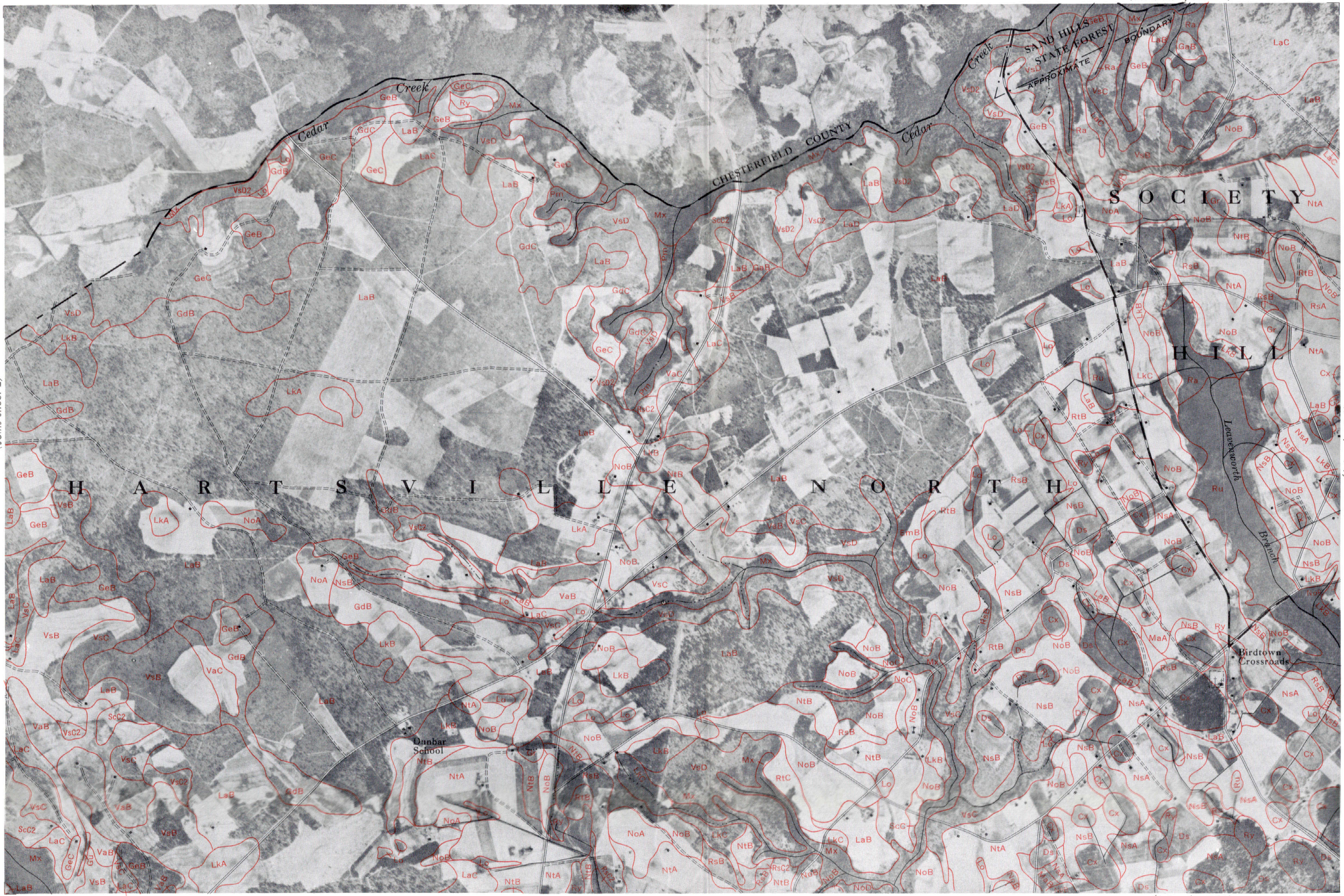
(Joins inset, sheet 2)

(Joins sheet 2)



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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 4

(Joins inset, sheet 2)

(Joins sheet 3)

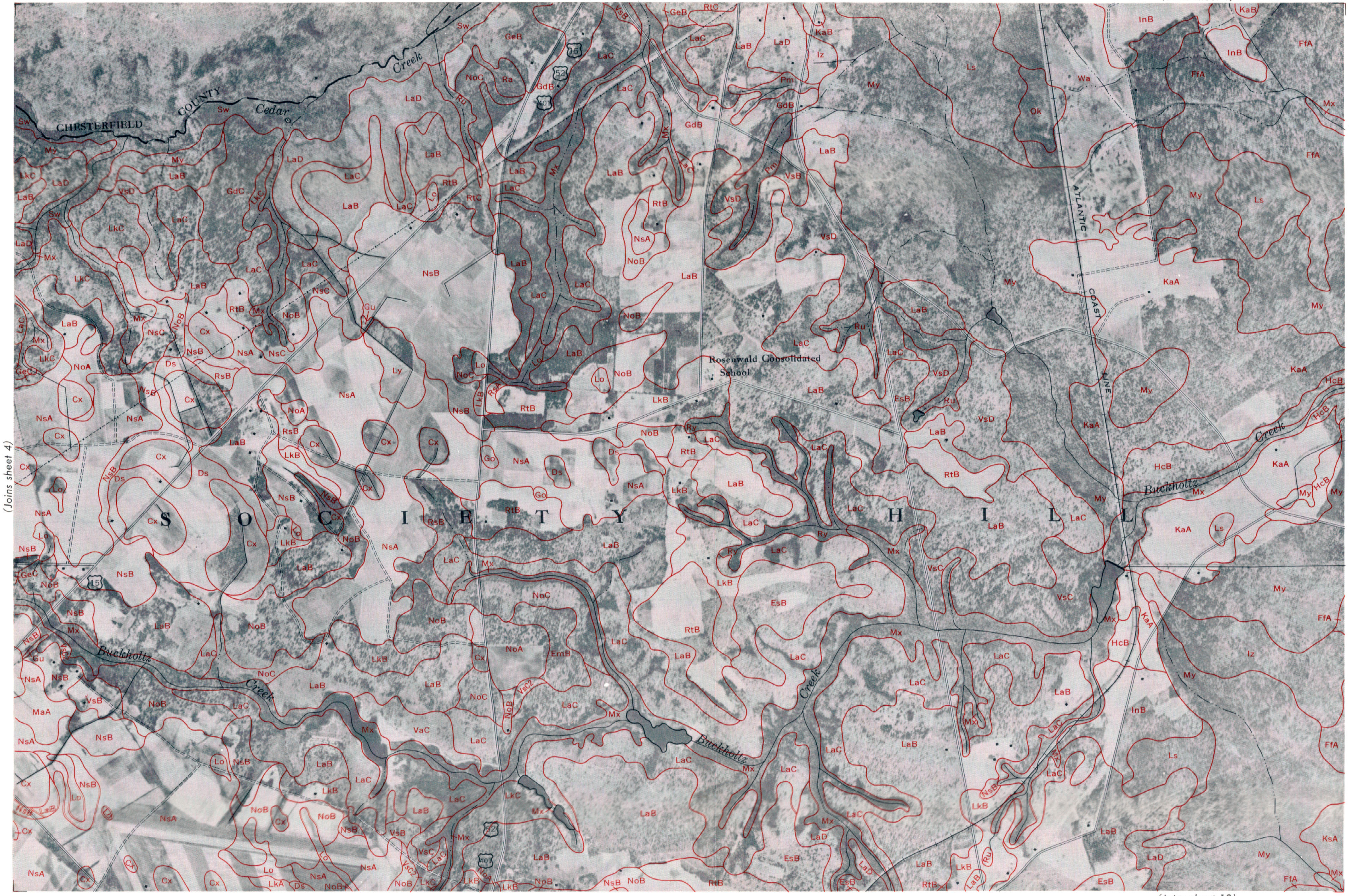
(Joins sheet 5)

(Joins sheet 11)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

5

(Joins sheet 1)



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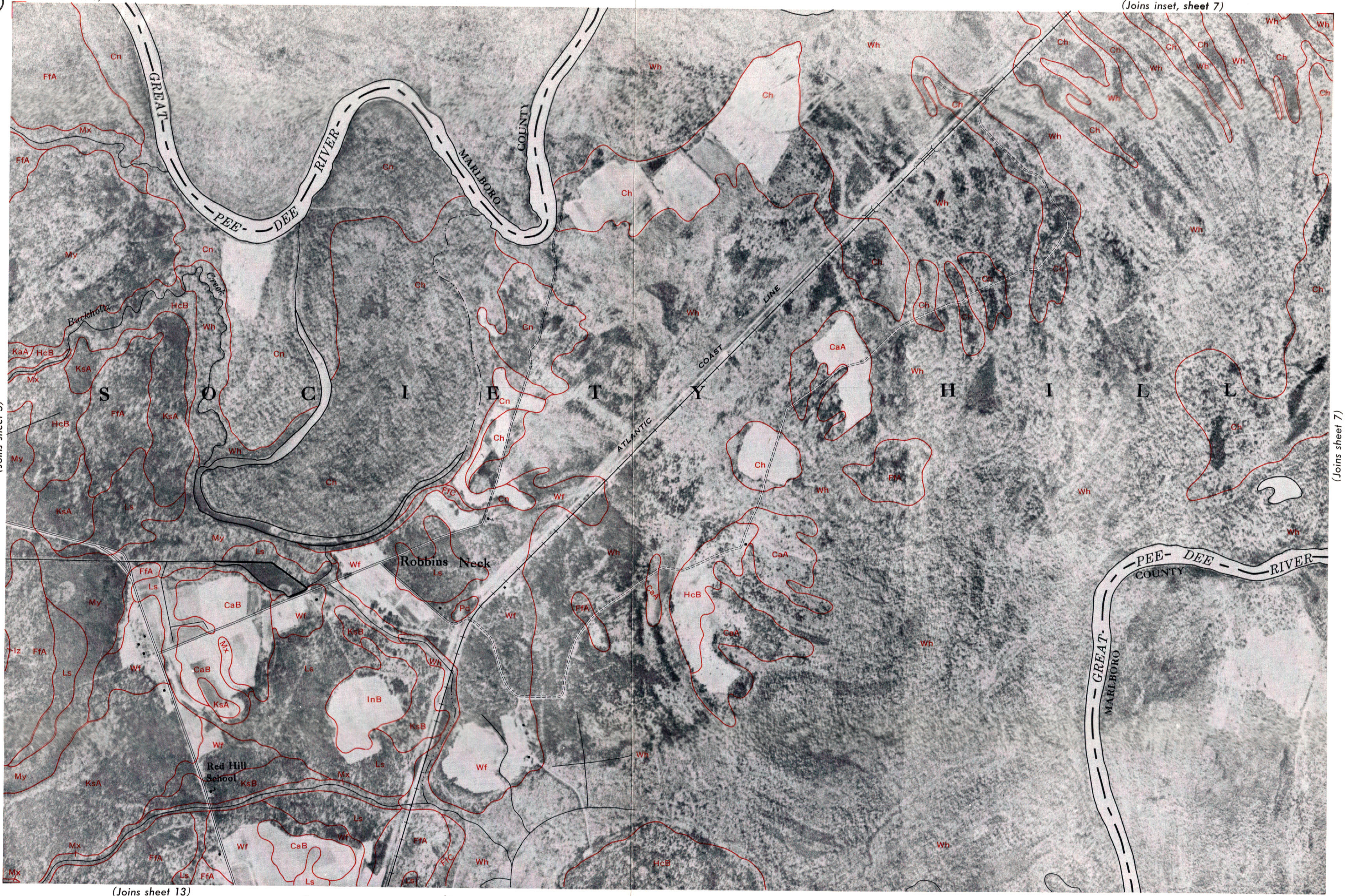
(Joins sheet 1)

(Joins inset, sheet 7)

N

(Joins sheet 5)



(Joins sheet 7)

(Joins sheet 13)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

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(Joins inset right)

(Joins sheet 6)

N

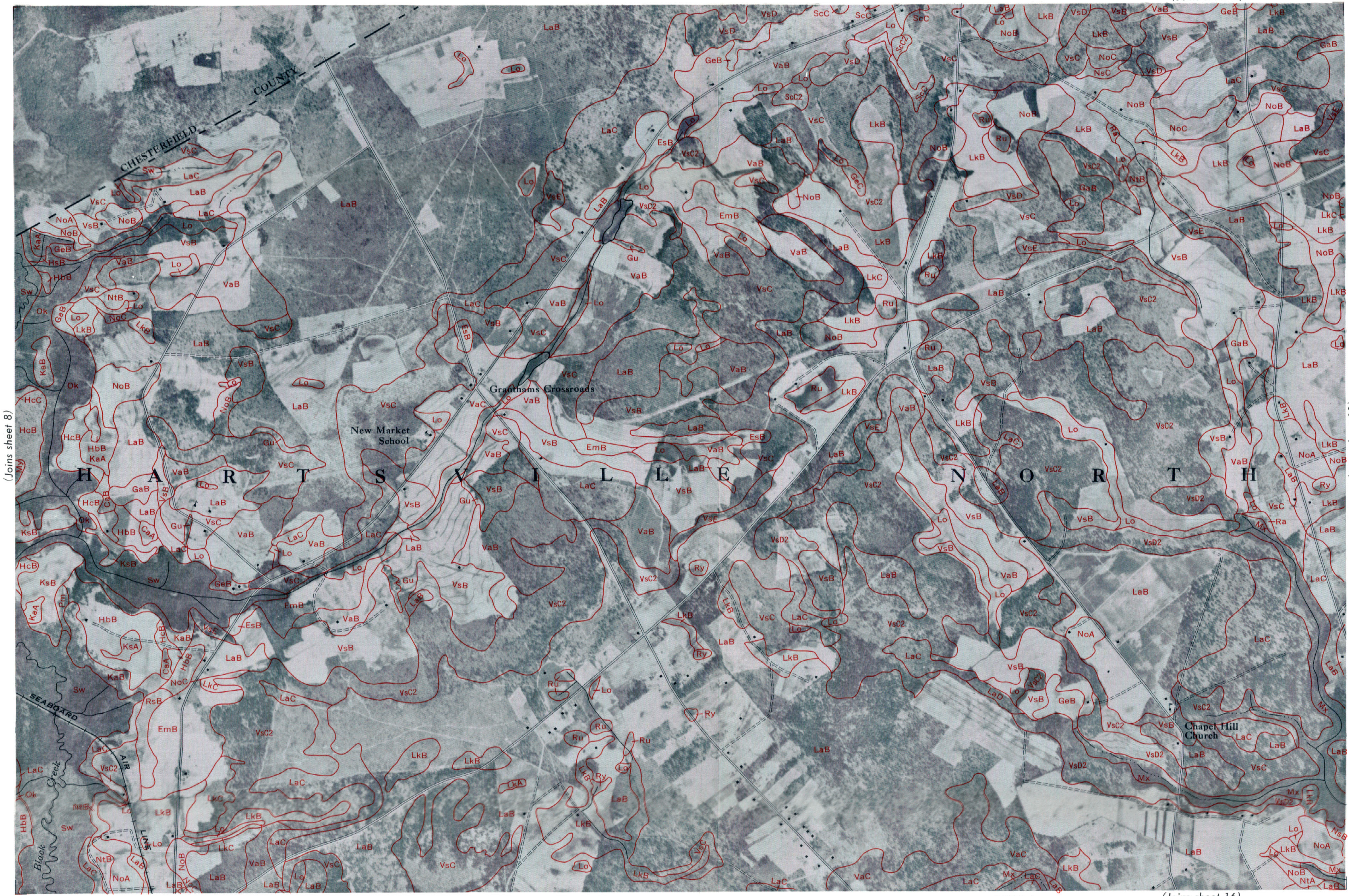
(Joins sheet 6) | (Joins sheet 7)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 8

(Joins sheet 2)

9



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(Joins sheet 16)

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10

(Joins sheet 3)

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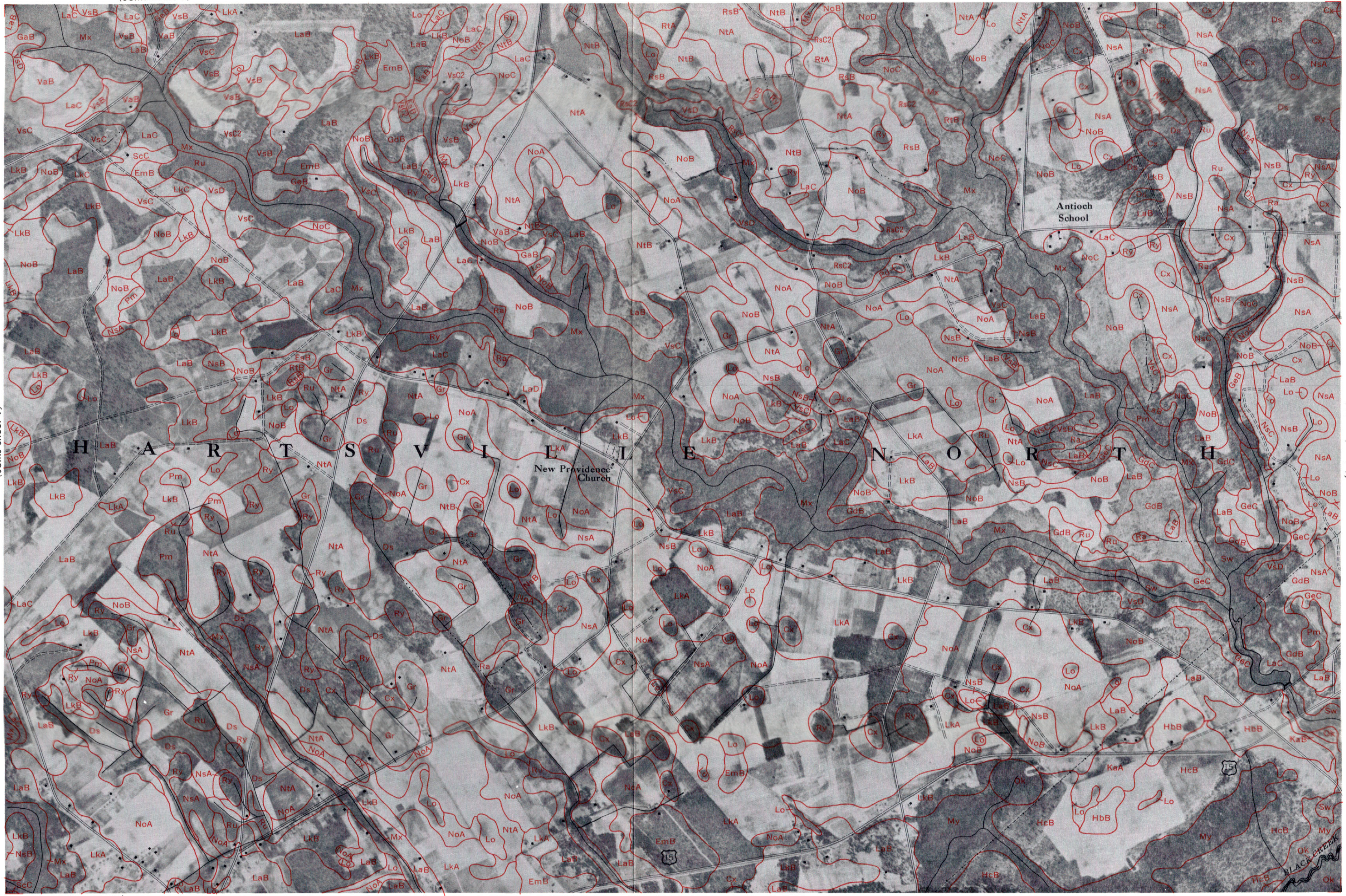

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(Joins sheet 17)

0 1/2 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 4)

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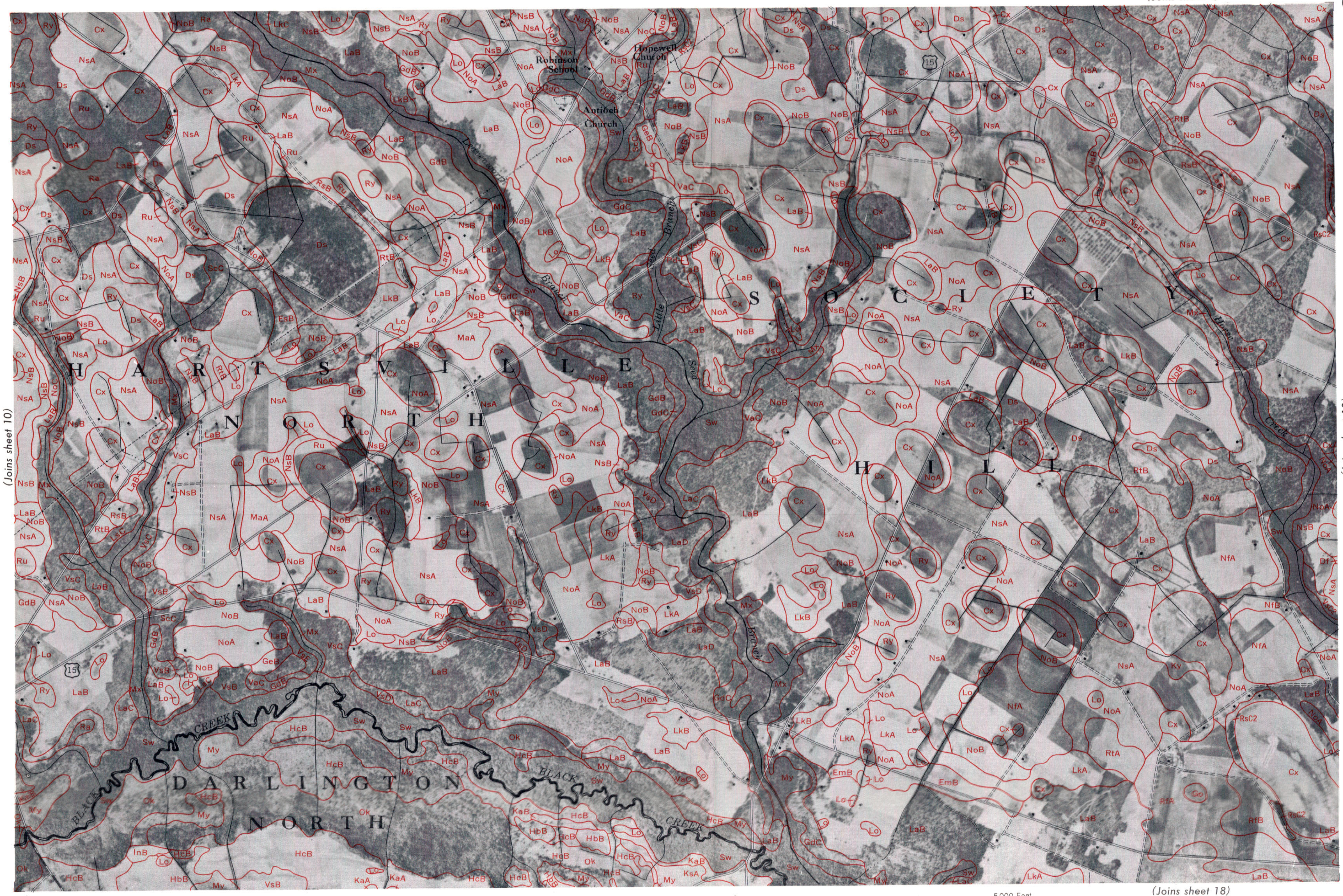

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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 12

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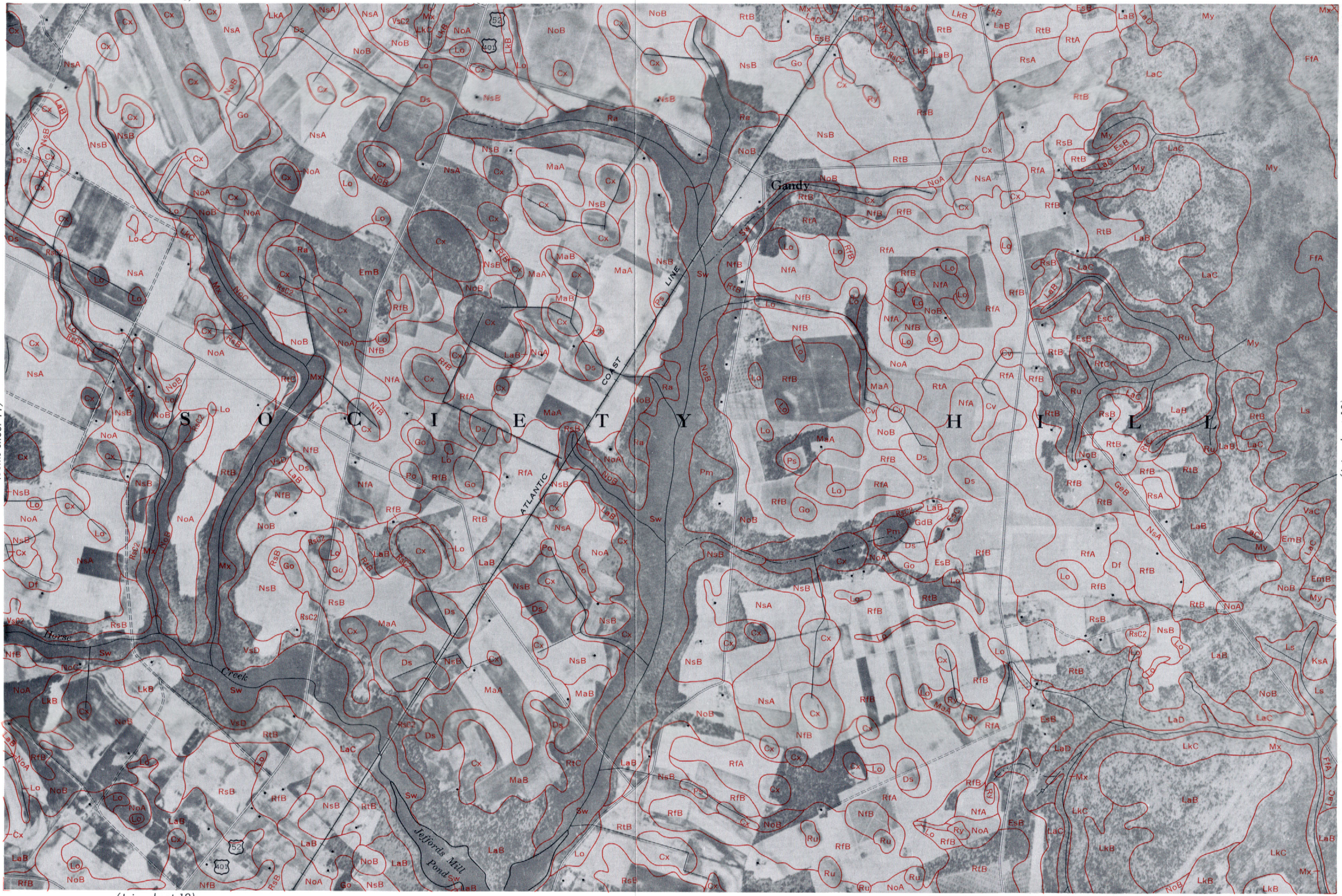

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Scale 1:20 000

0 1/2 1 Mile

0 5000 Feet

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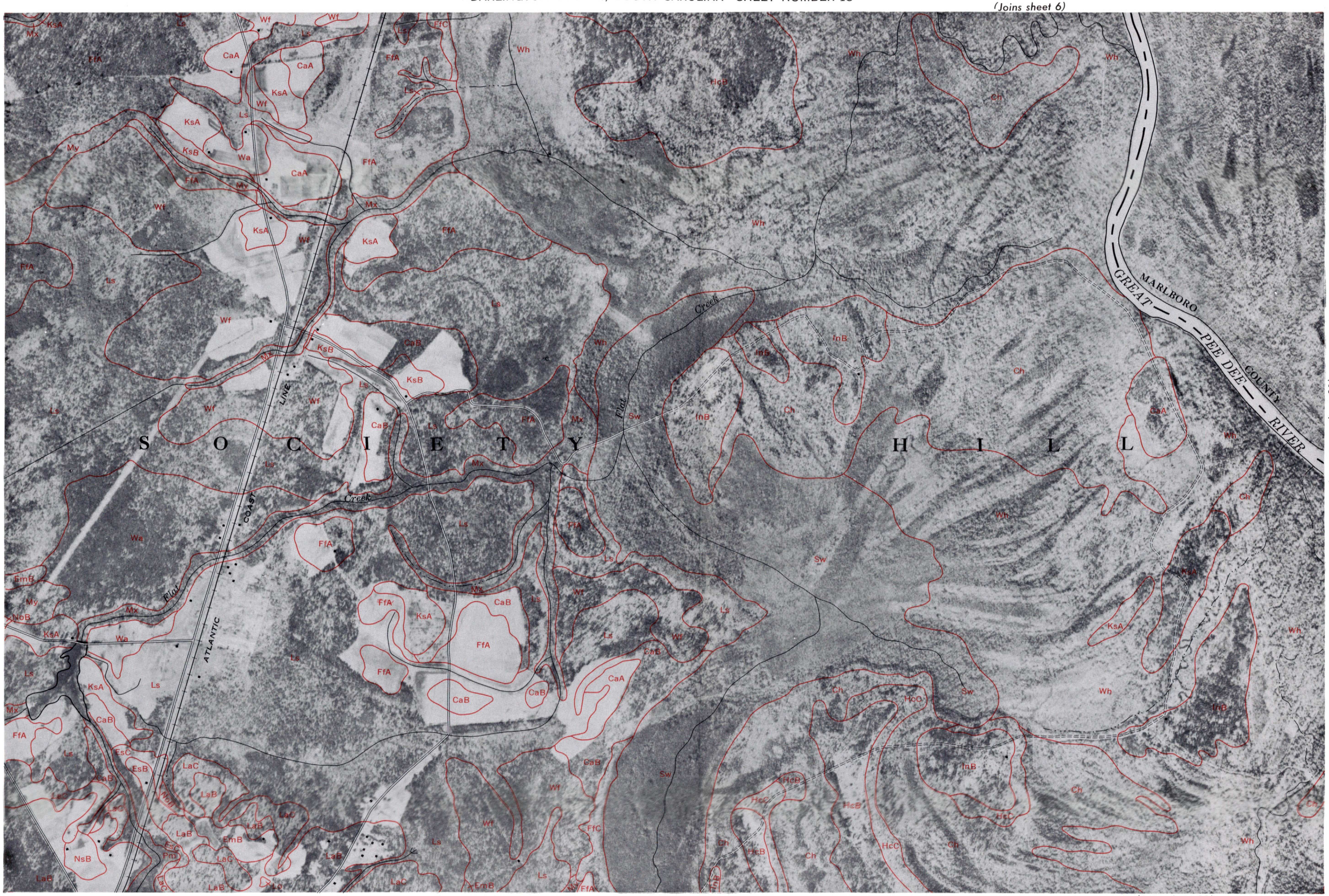

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Scale 1:20 000

0 1/2 1 Mile

0 5000 Feet

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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 14

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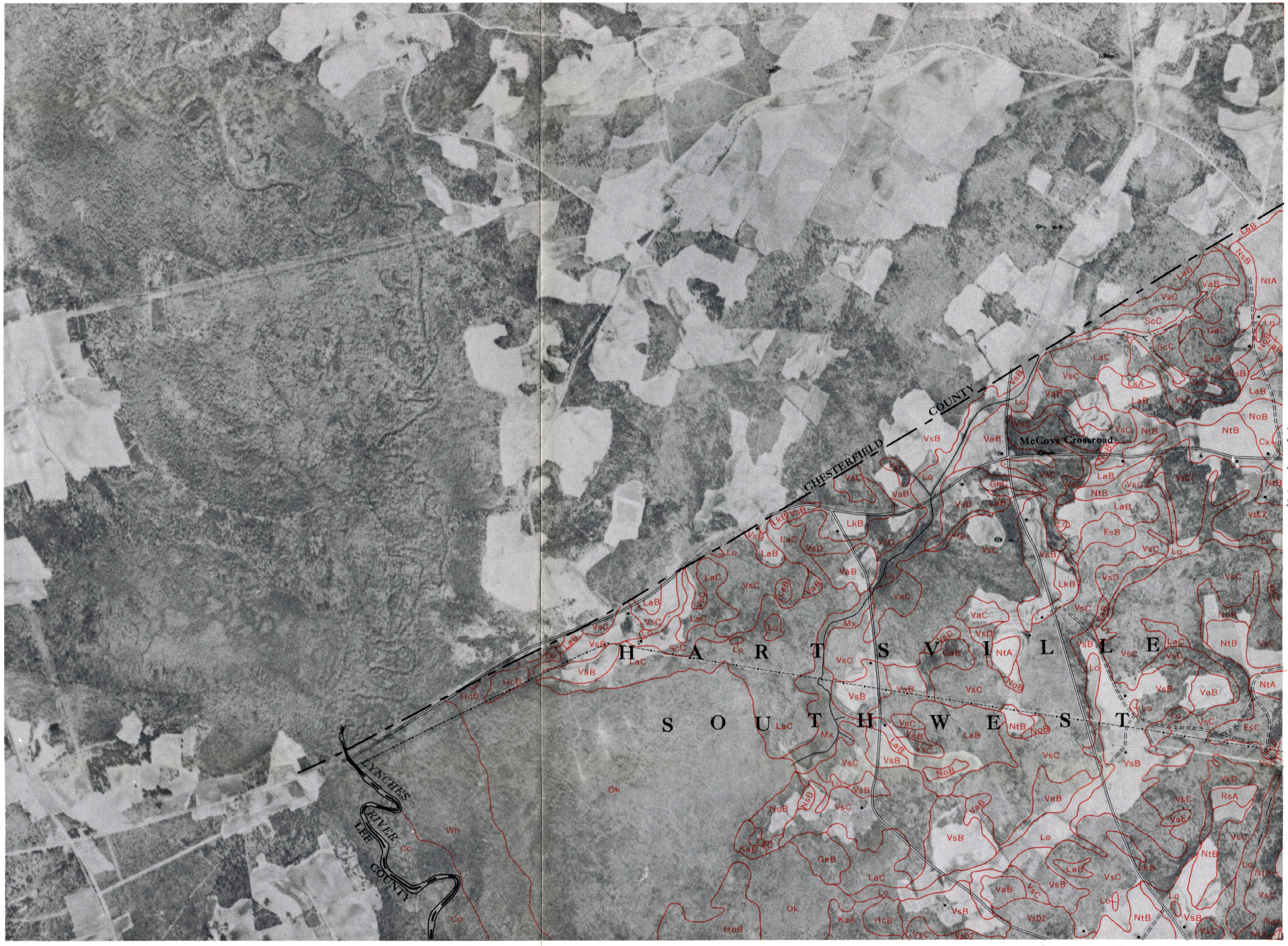

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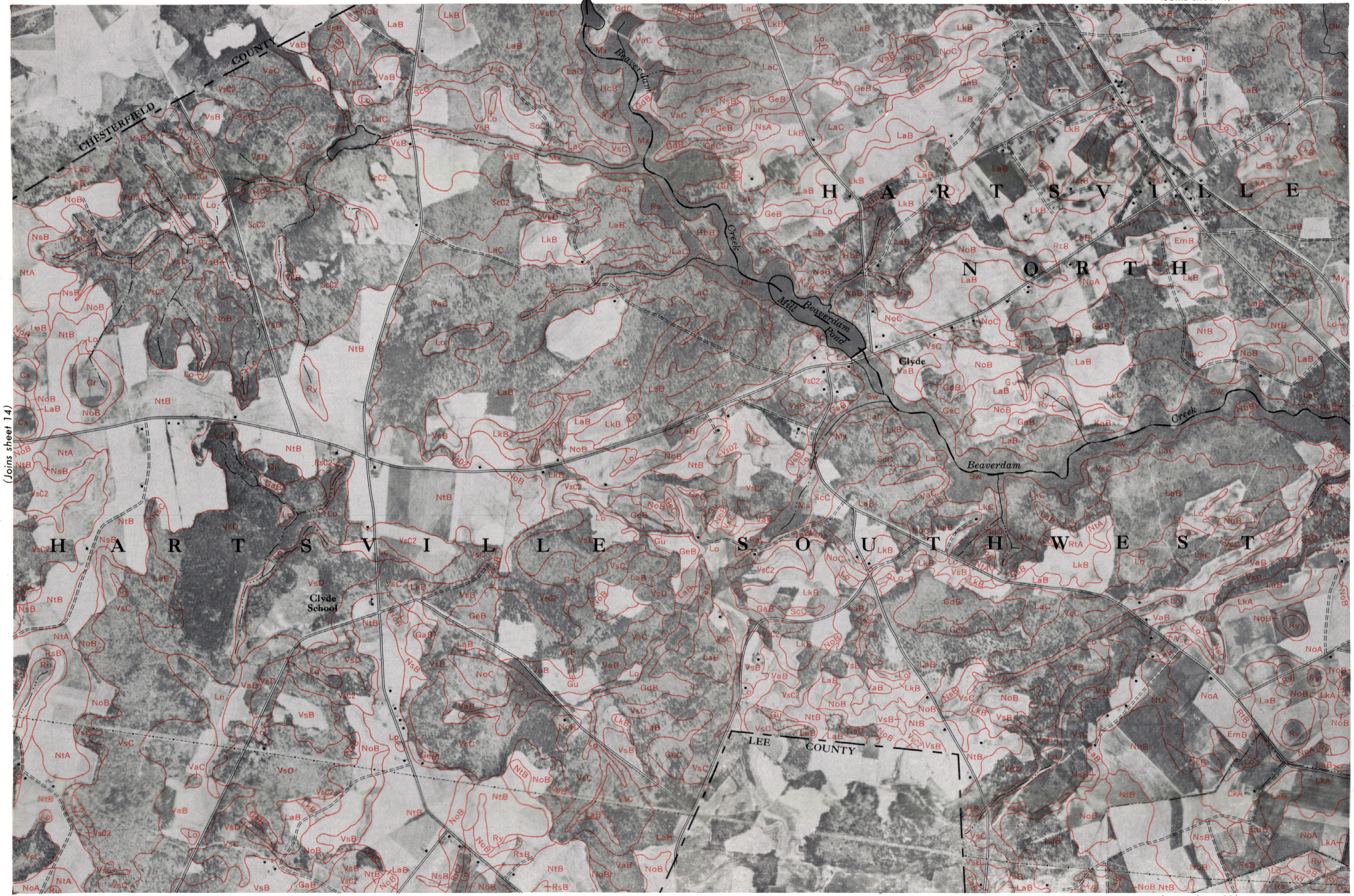
(Joins sheet 14)



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(Joins sheet 23)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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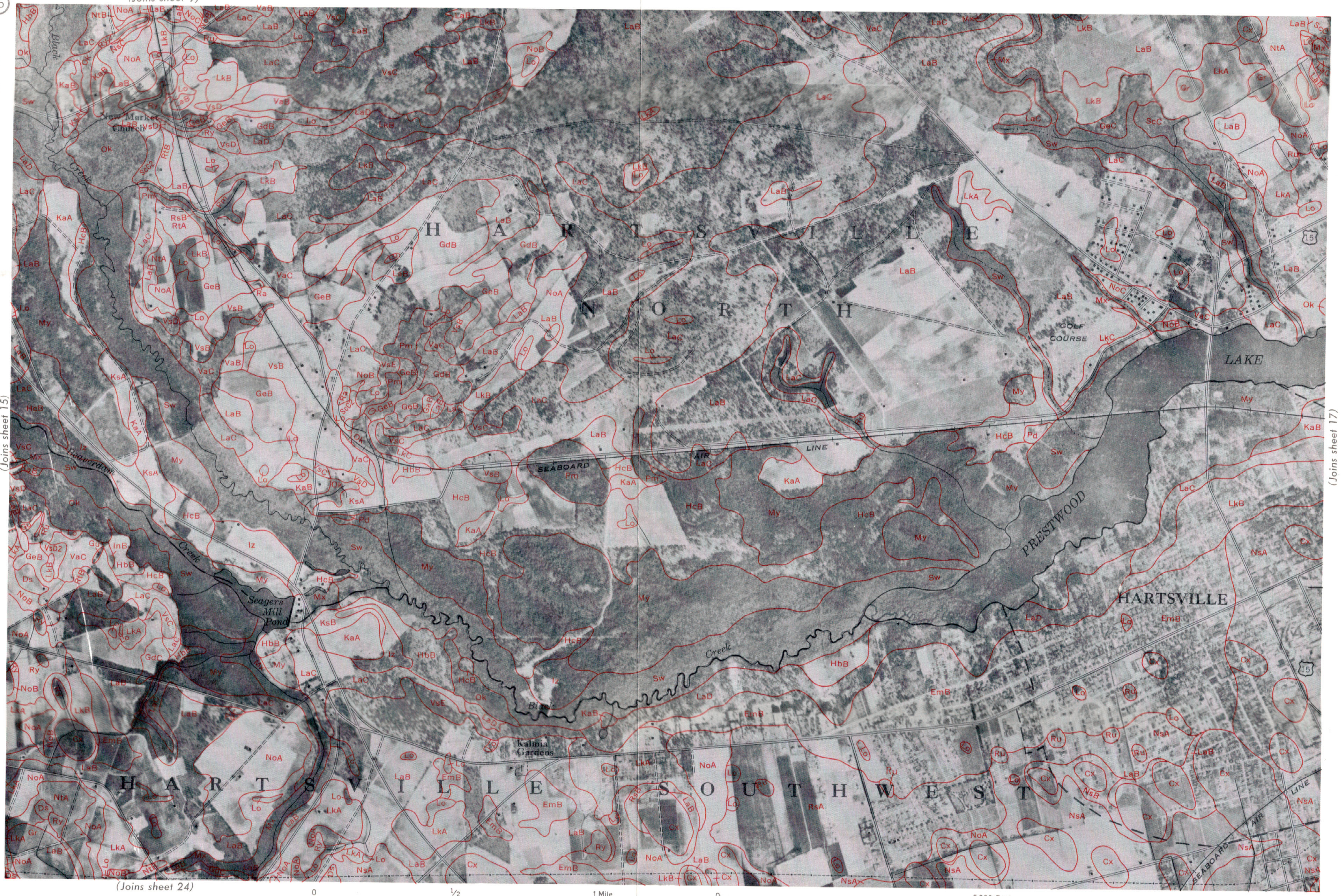
(Joins sheet 9)



(Joins sheet 15)

(Joins sheet 17)

(Joins sheet 24)

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

(17)

(Joins sheet 10)

(Joins sheet 16)

(Joins sheet 18)

(Joins sheet 25)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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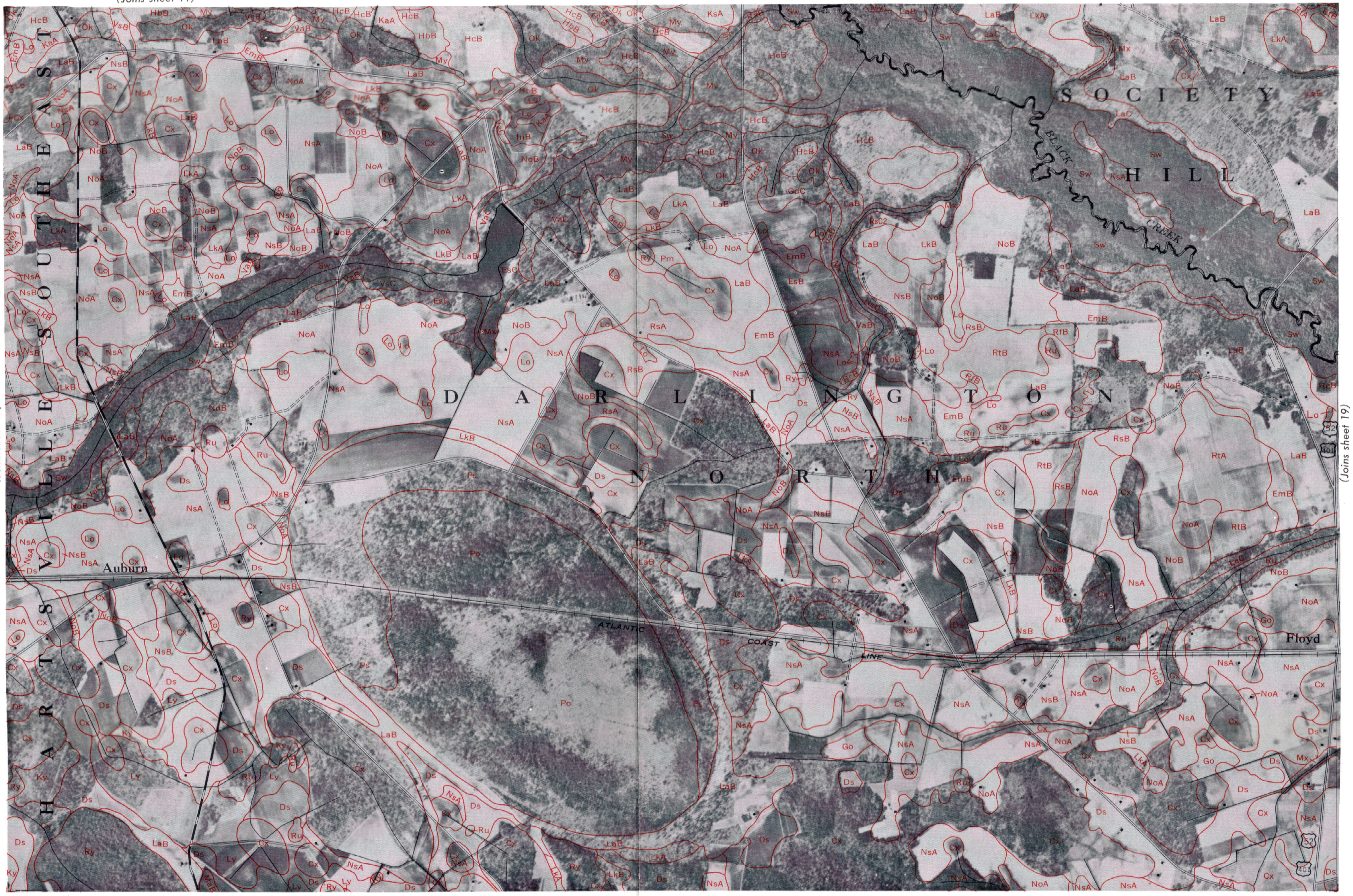
18

(Joins sheet 11)

(Joins sheet 17)



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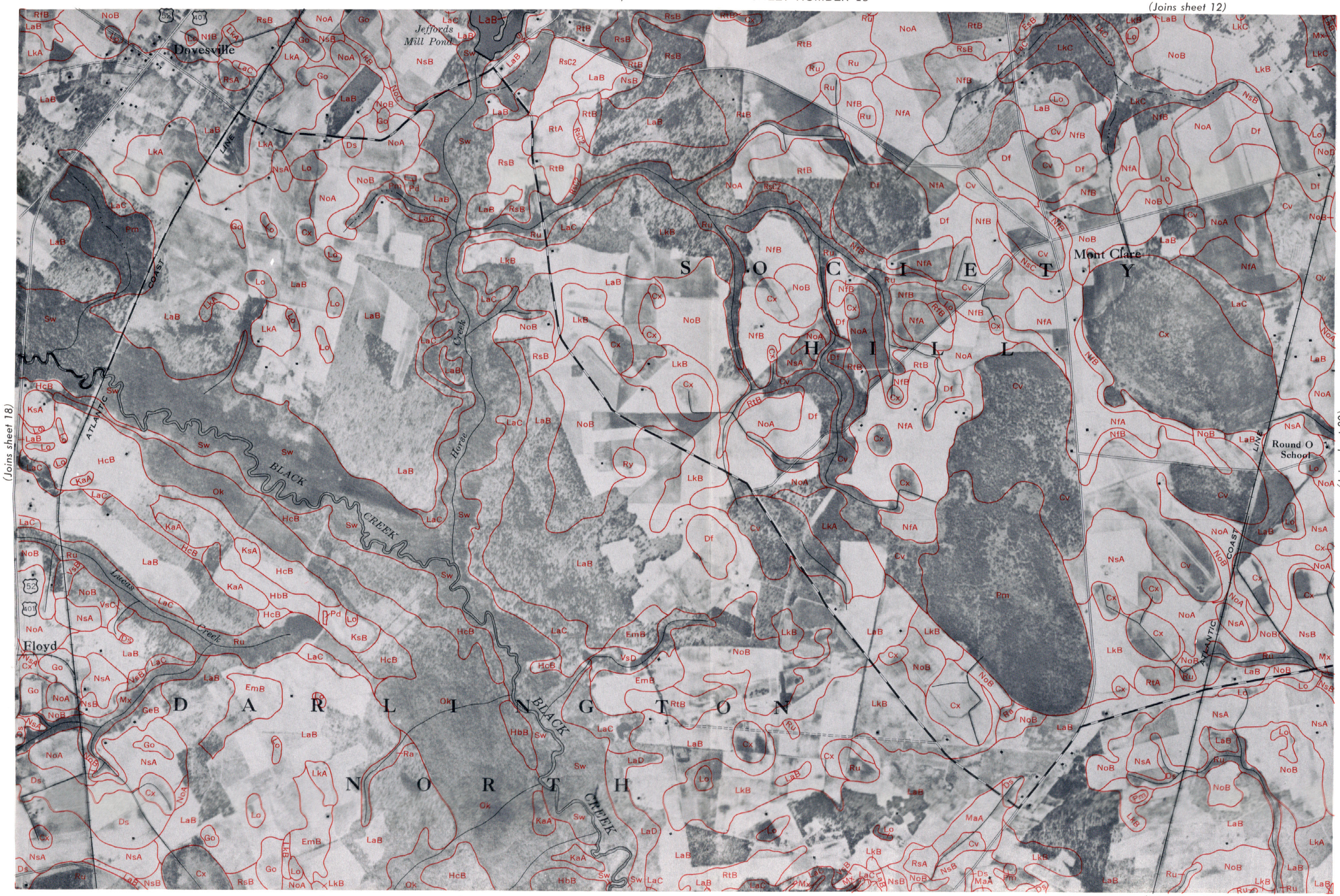

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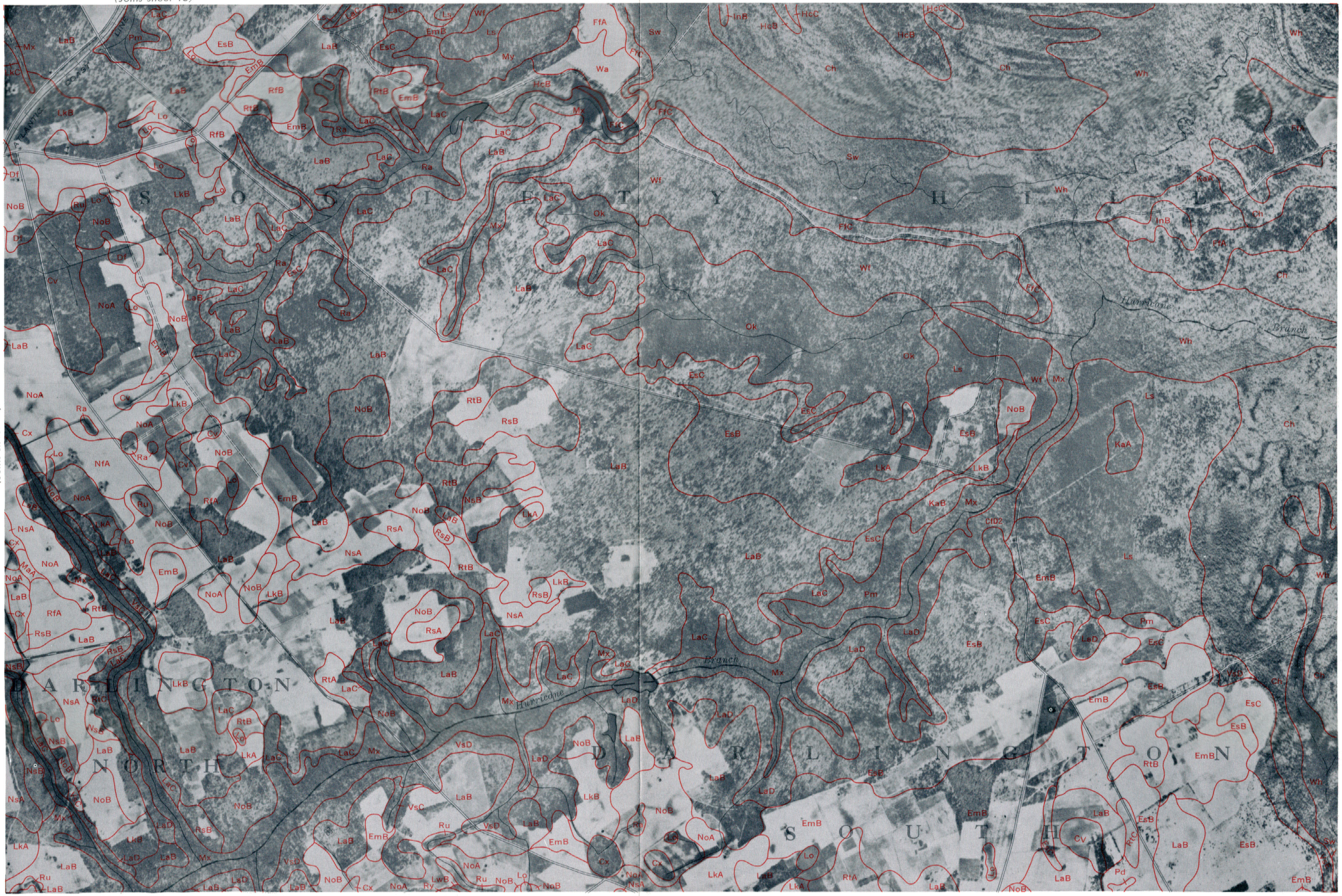
(Joins sheet 13)

(Joins sheet 19)



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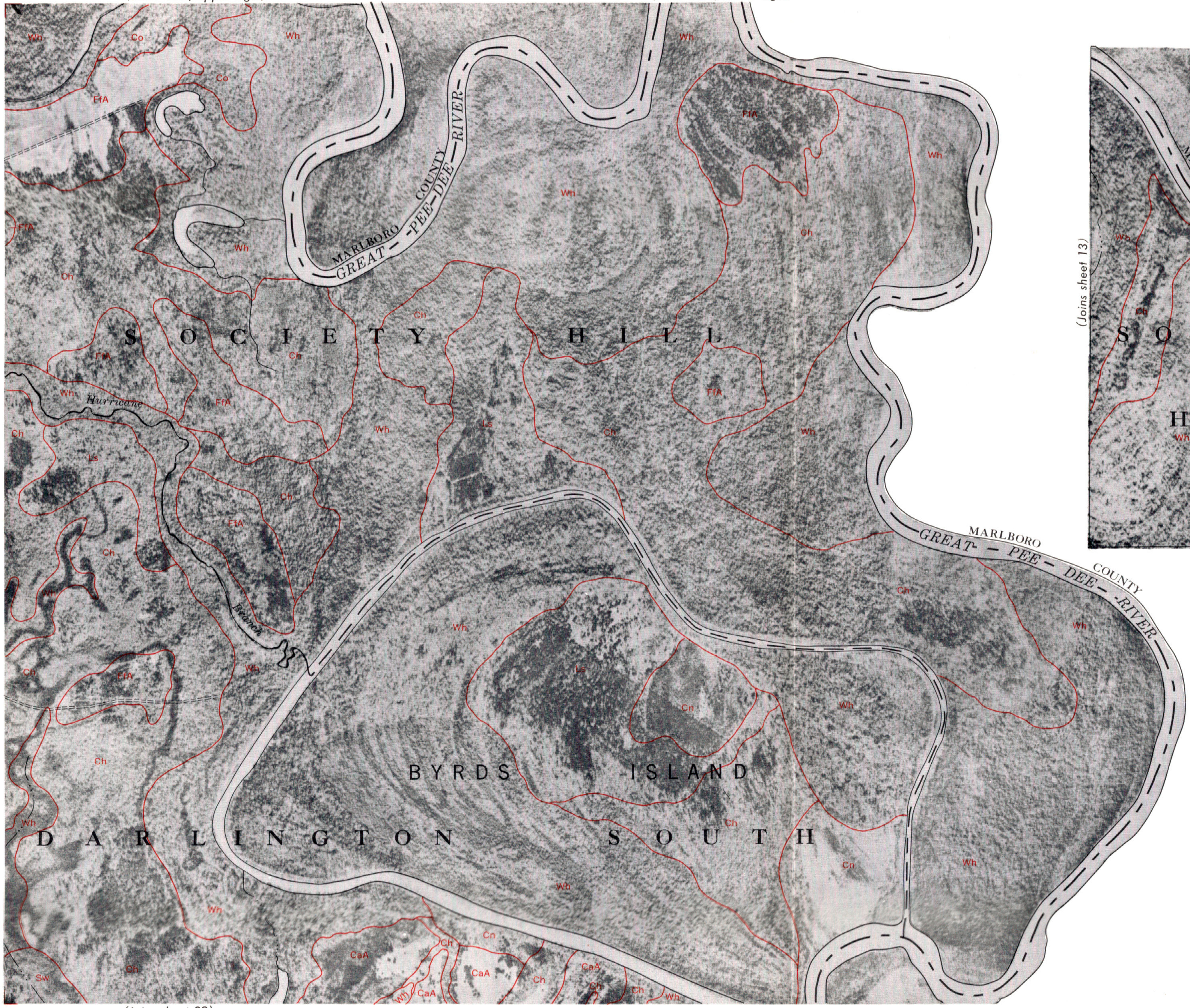
(Joins inset, upper right)

(Joins inset, below right)

(Joins sheet 20)



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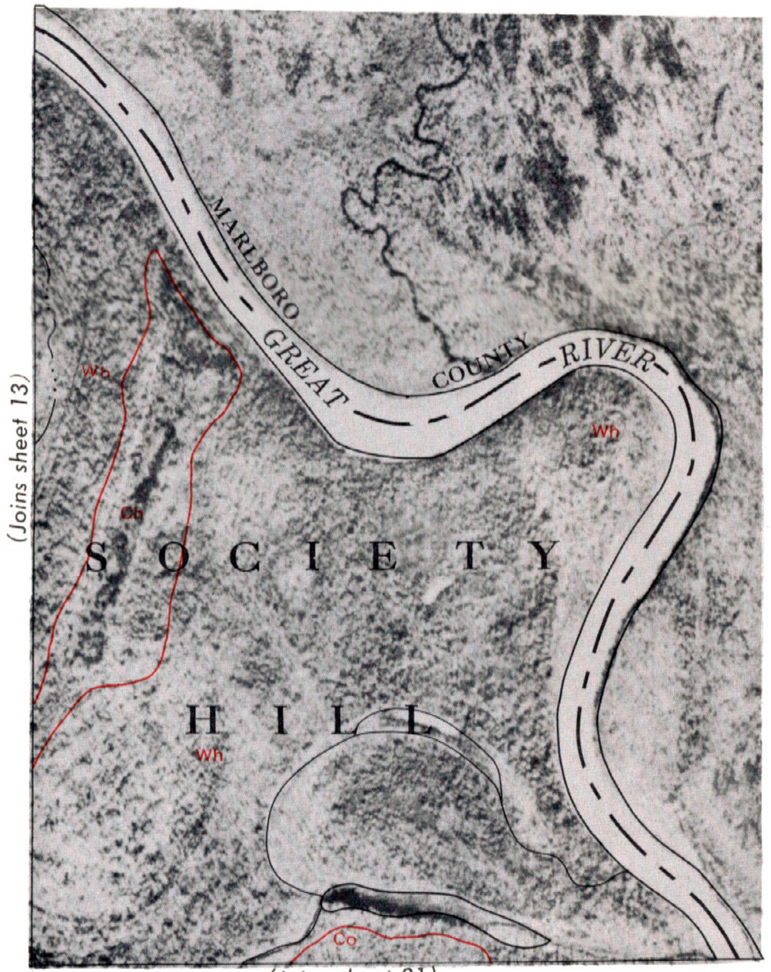

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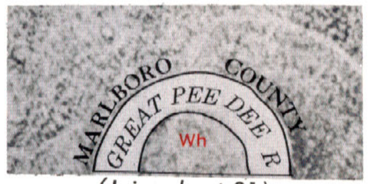

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0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 22

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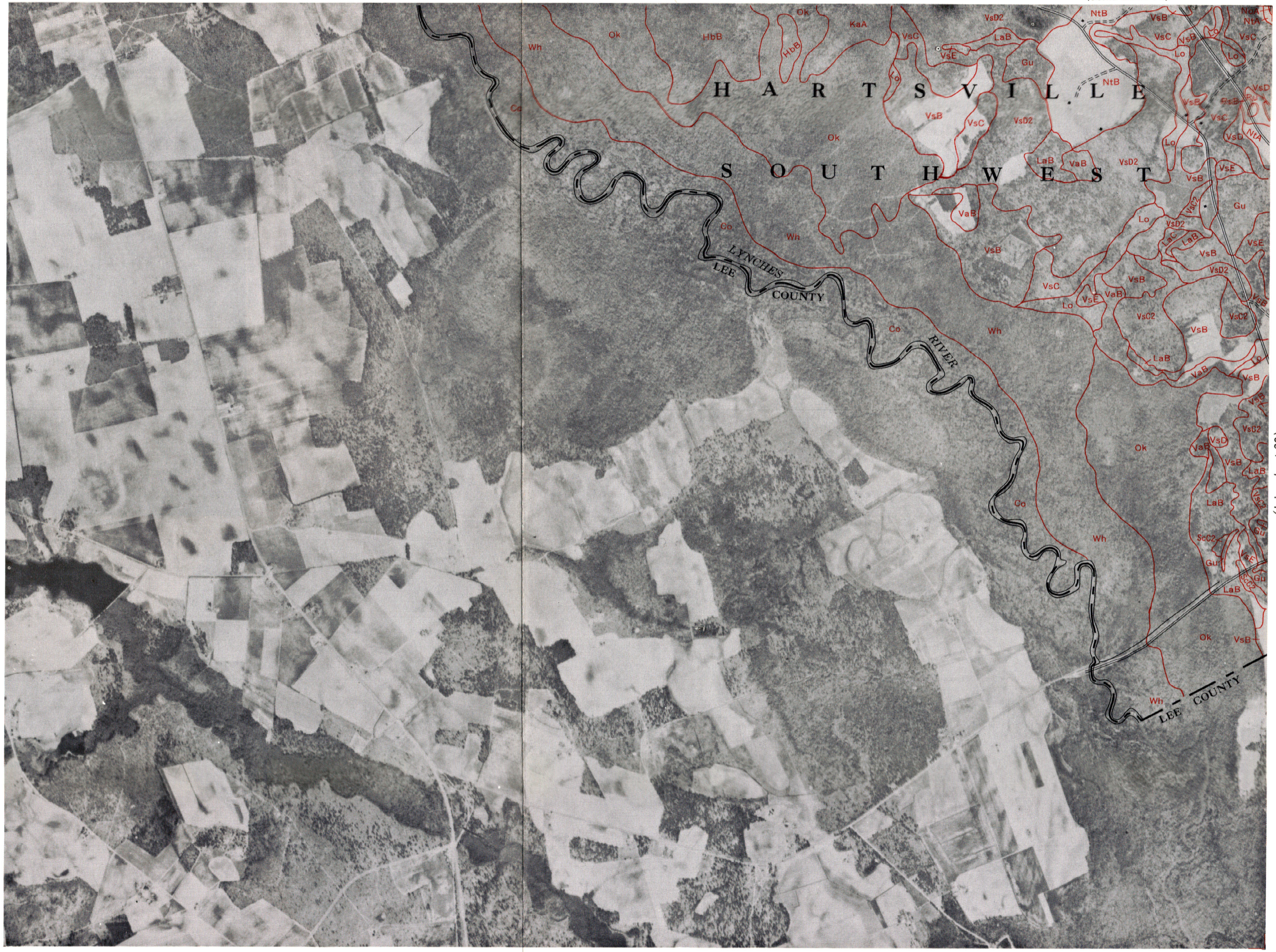

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0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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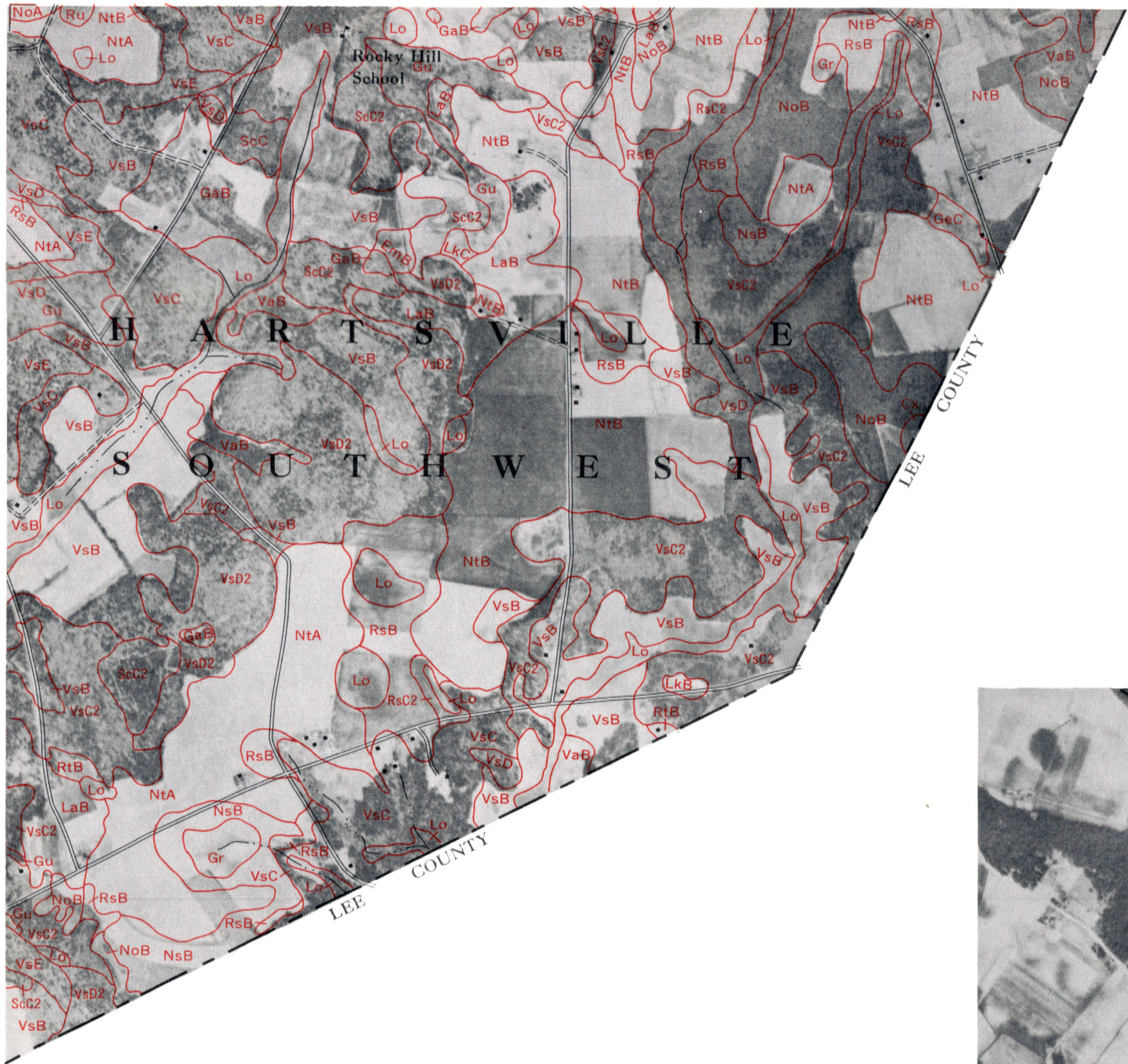

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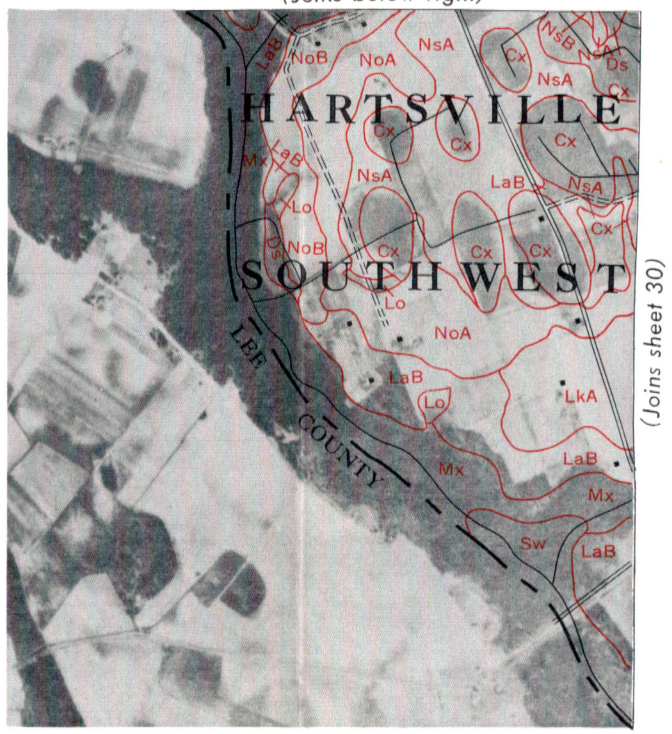

(Joins sheet 30)

(Joins sheet 15)

(Joins sheet 24)

(Joins inset)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 24

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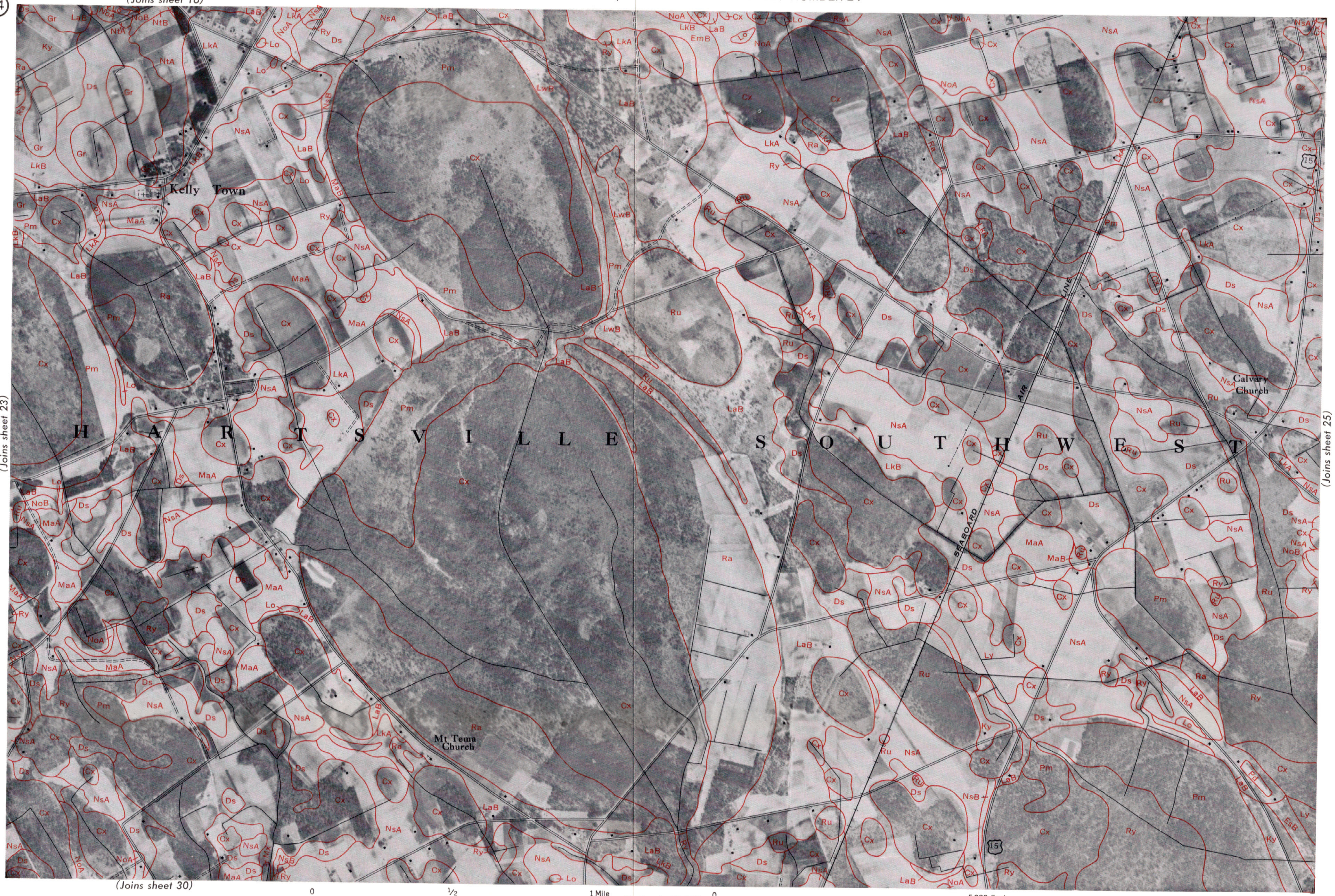
(Joins sheet 23)



(Joins sheet 25)

(Joins sheet 30)

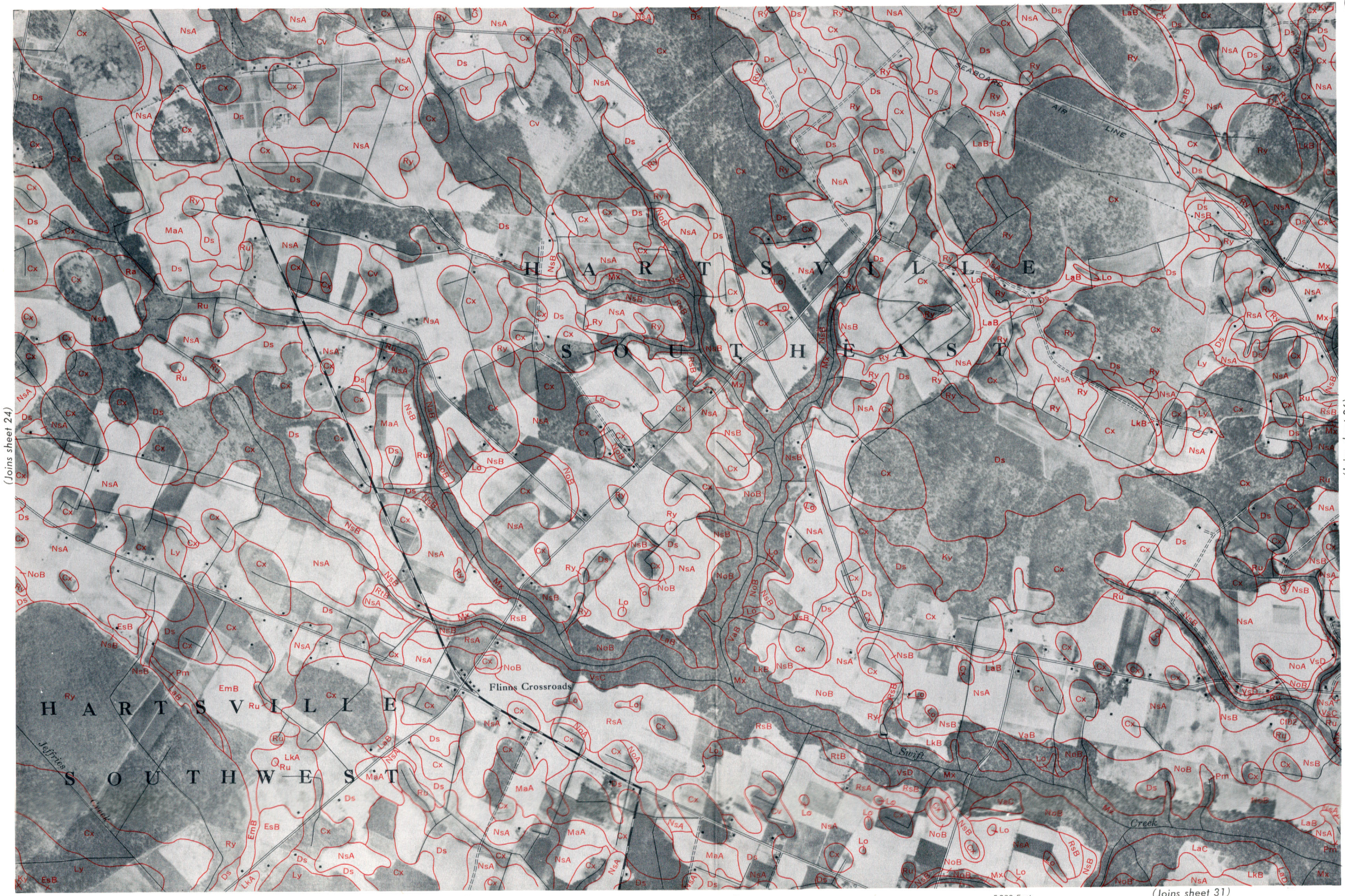
0 1/2 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 17)

(Joins sheet 24)



(Joins sheet 26)

(Joins sheet 31)

Scale 1:20 000

0 1/2 1 Mile

0 5000 Feet

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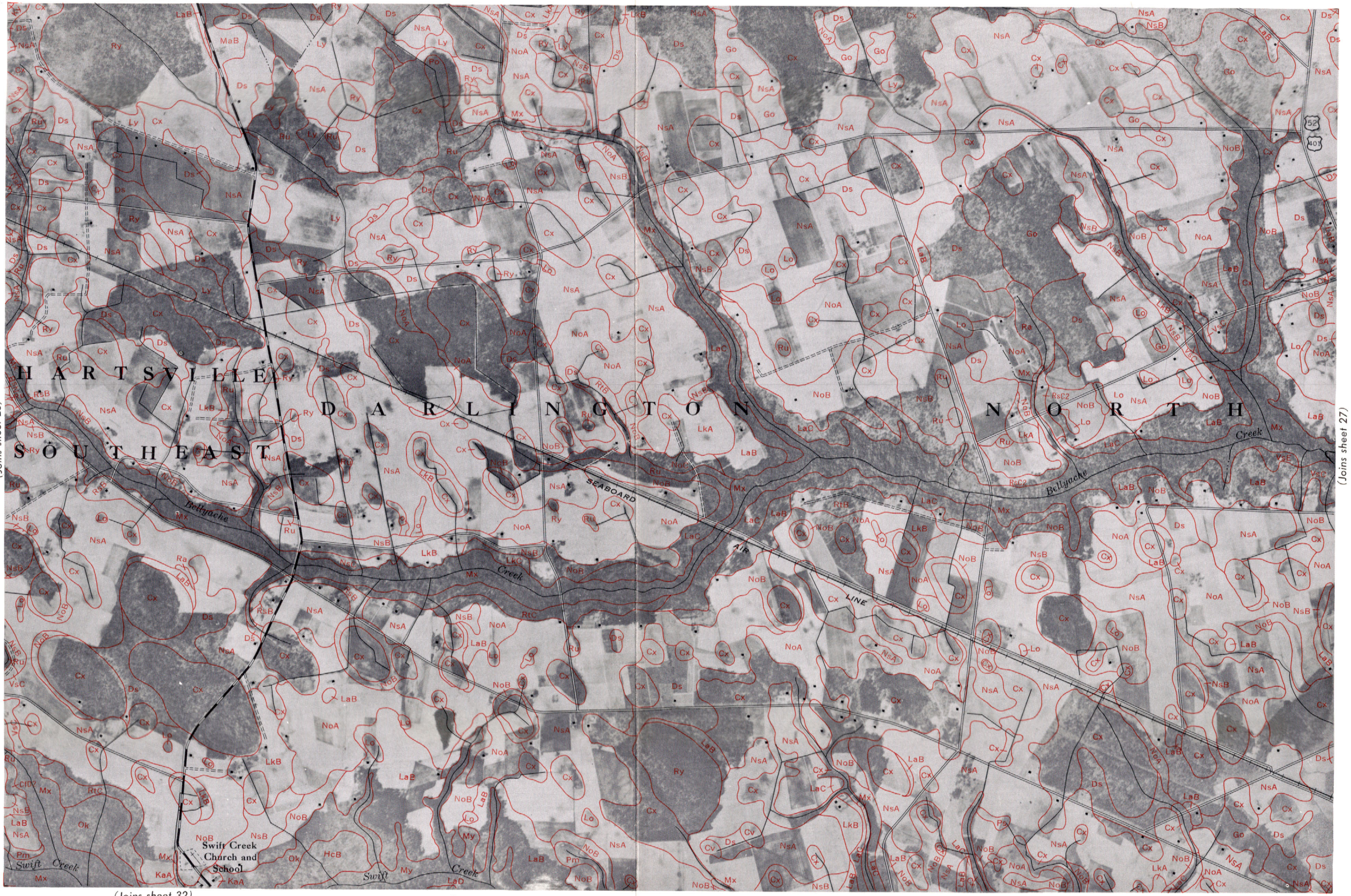
26

N

(Joins sheet 18)

(Joins sheet 25)



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(Joins sheet 32)

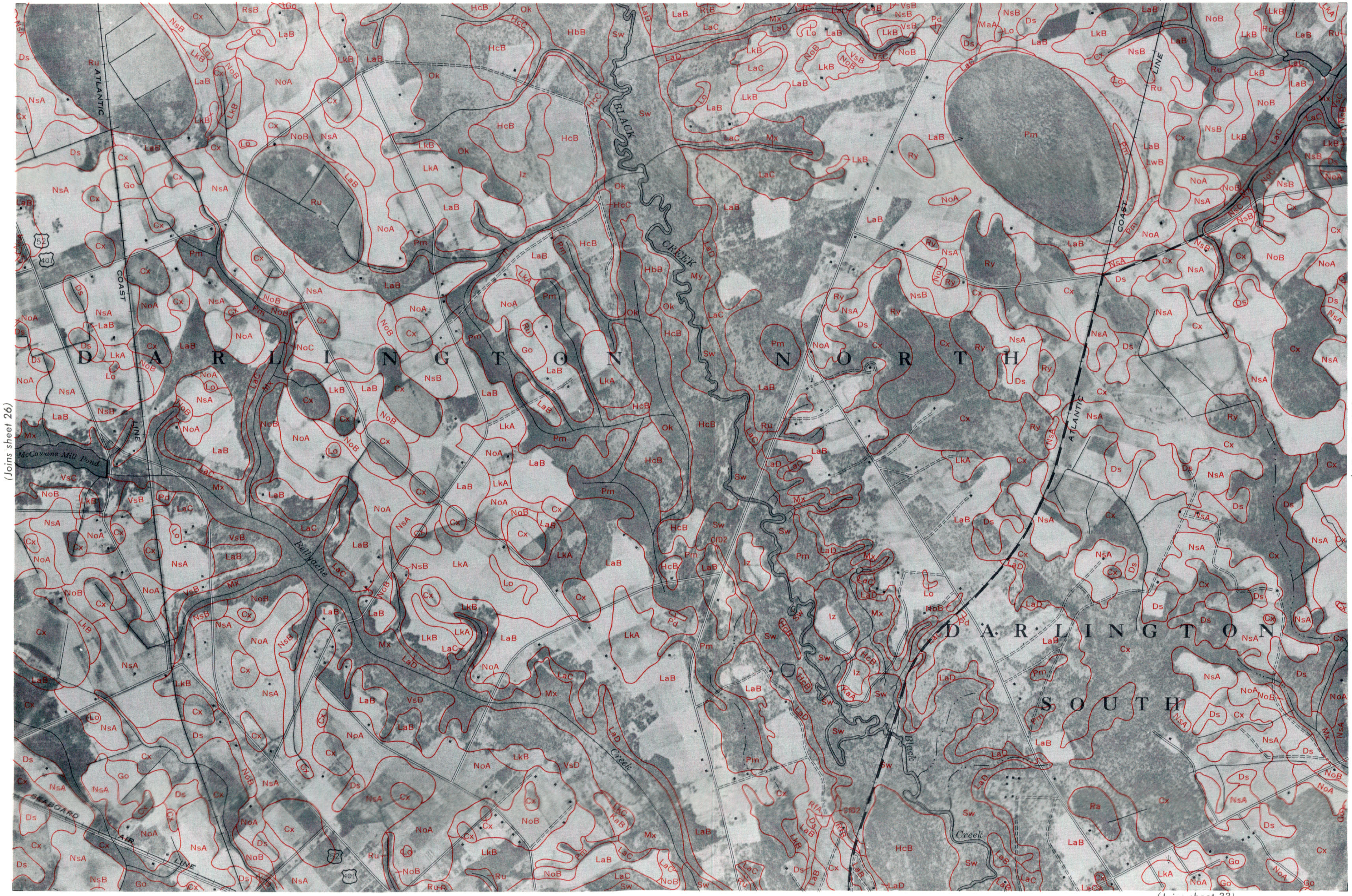
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 19)

(Joins sheet 26)



(Joins sheet 28)

(Joins sheet 33)

Scale 1:20 000

0 | 1/2 | 1 Mile

0 | 5000 Feet

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DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 28

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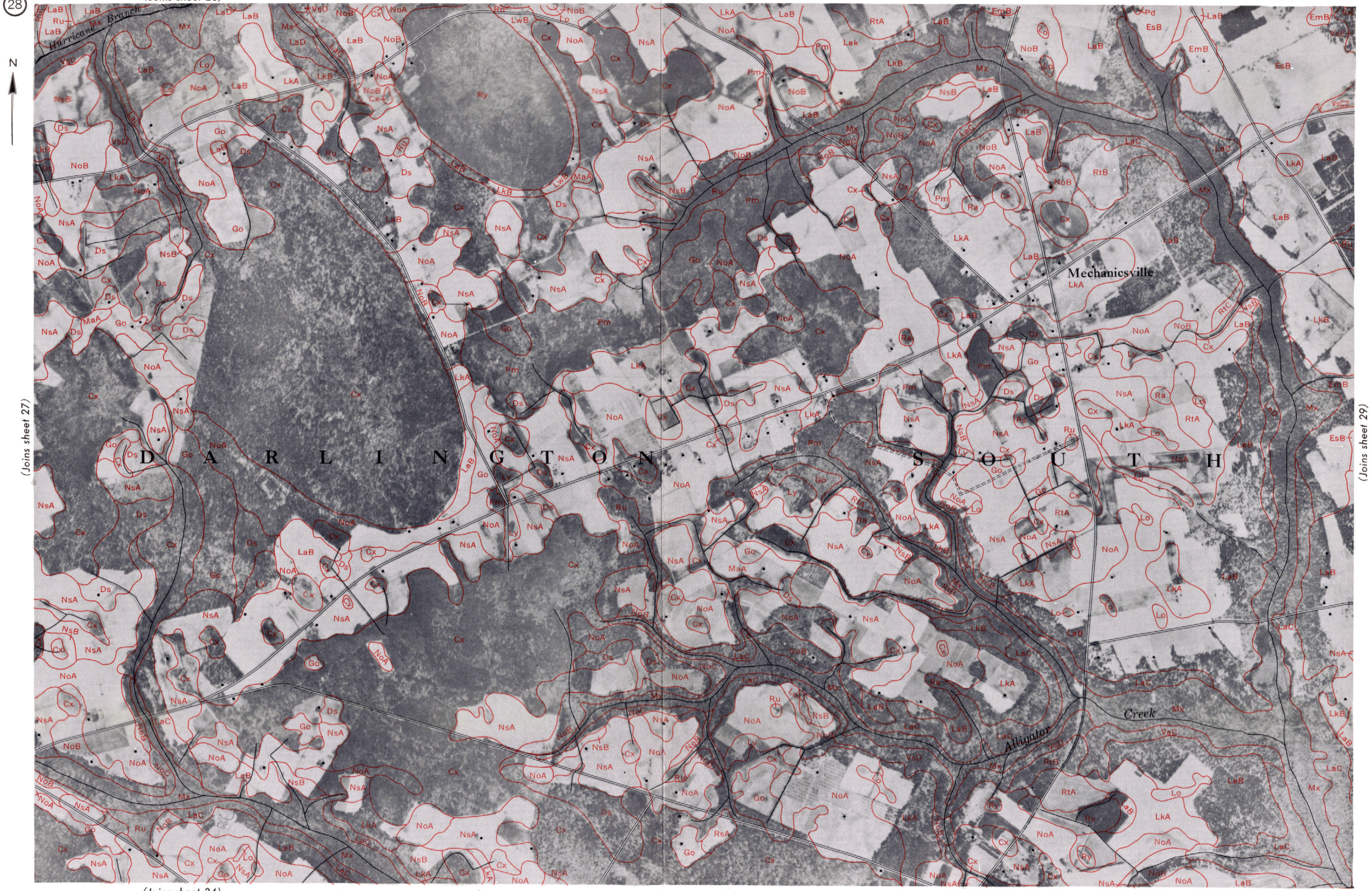

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0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 21)

(Joins sheet 28)

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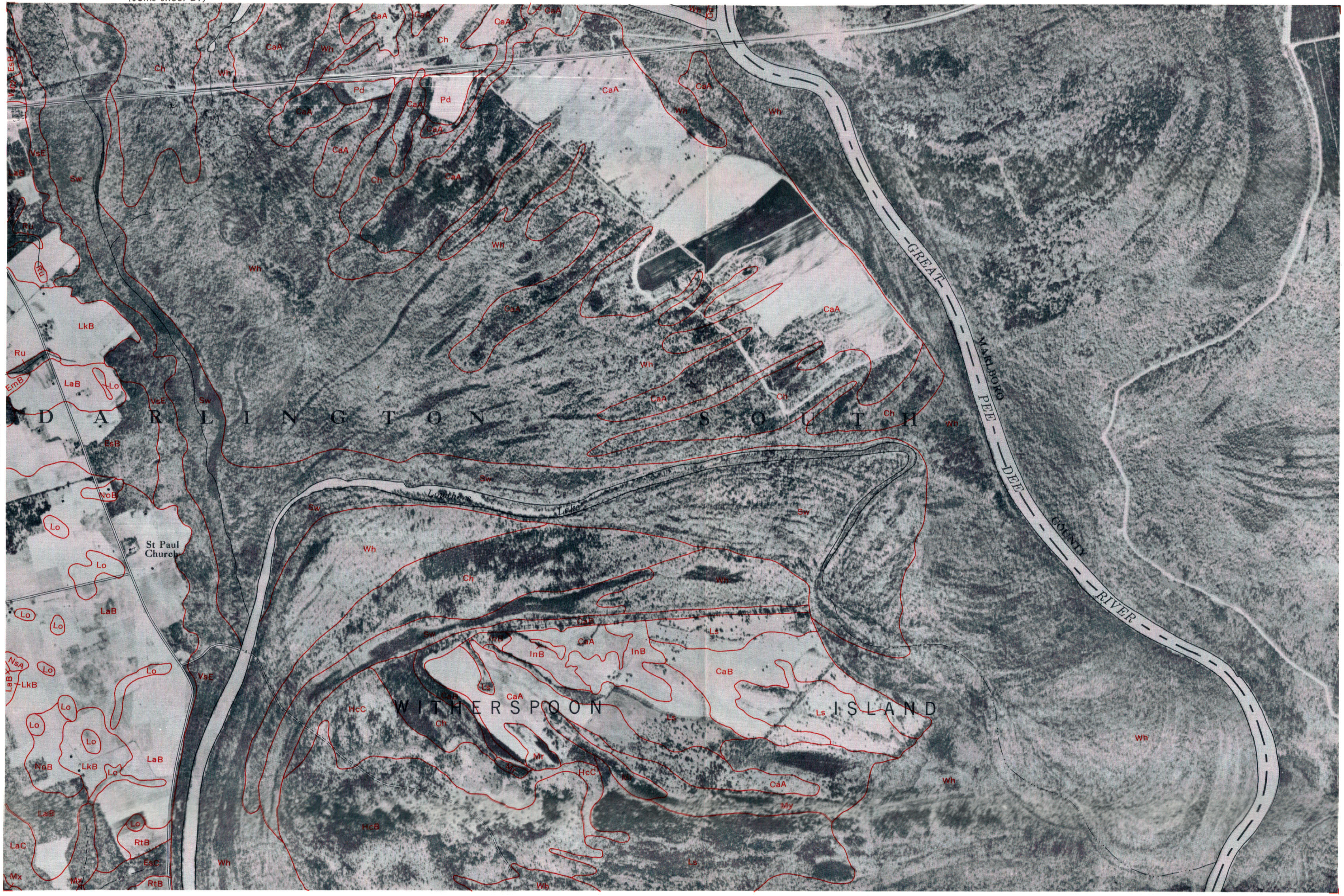

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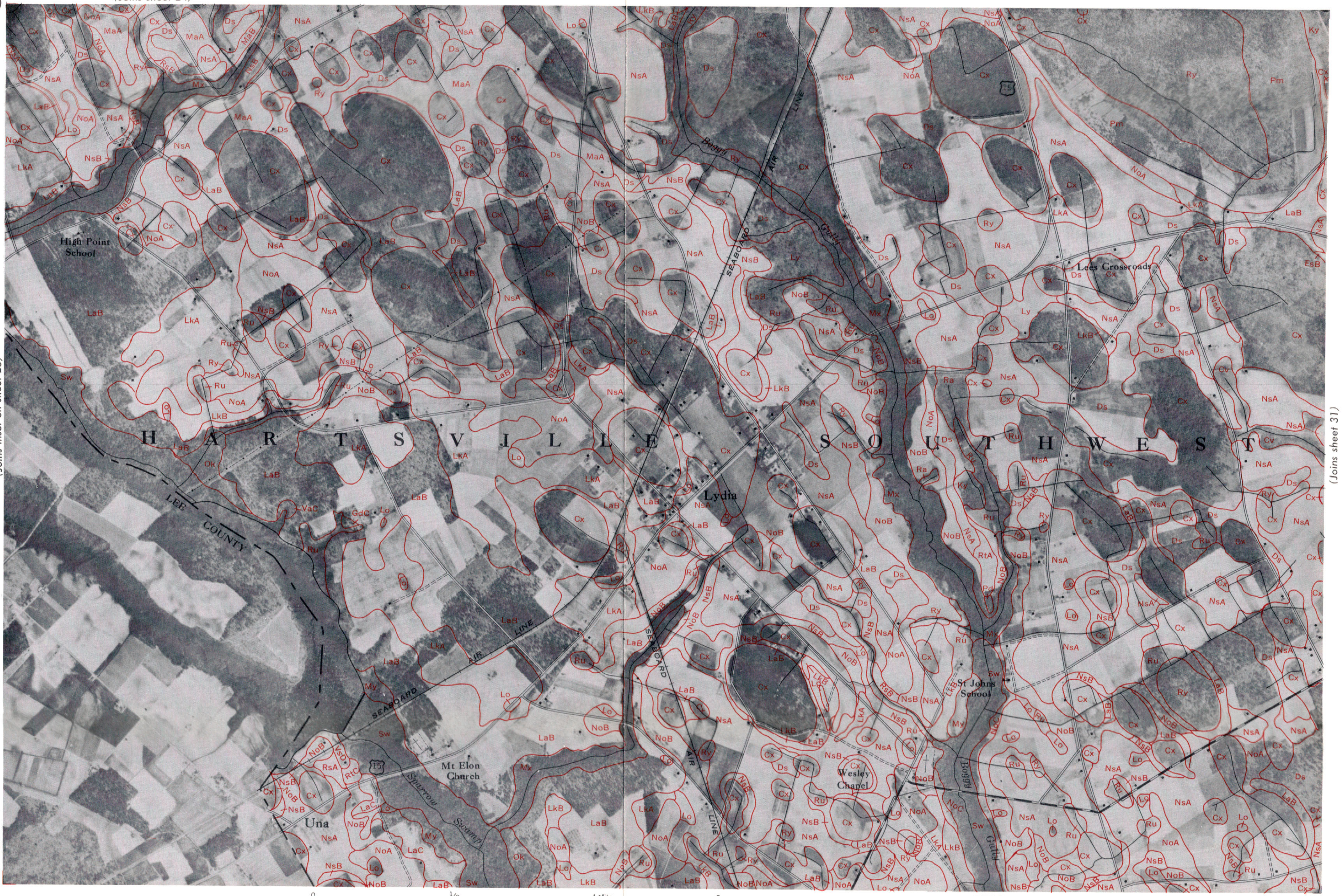
(Joins sheet 35)

(Joins sheet 24)

N

(Joins inset on sheet 23)



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0 1/2 1 Mile

Scale 1:20000

0 5000 Feet

(Joins sheet 36)

(Joins sheet 25)

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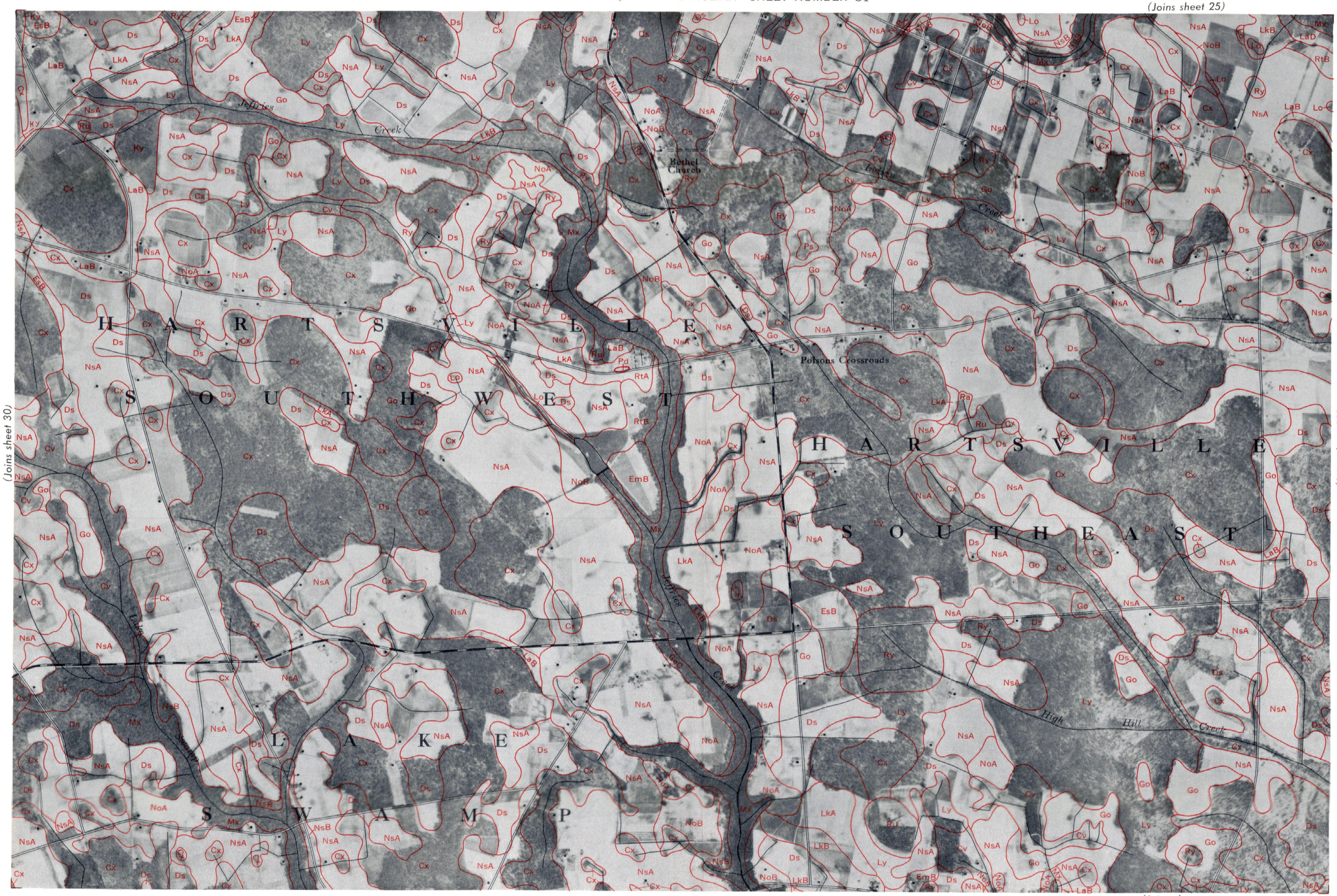

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(Joins sheet 37)

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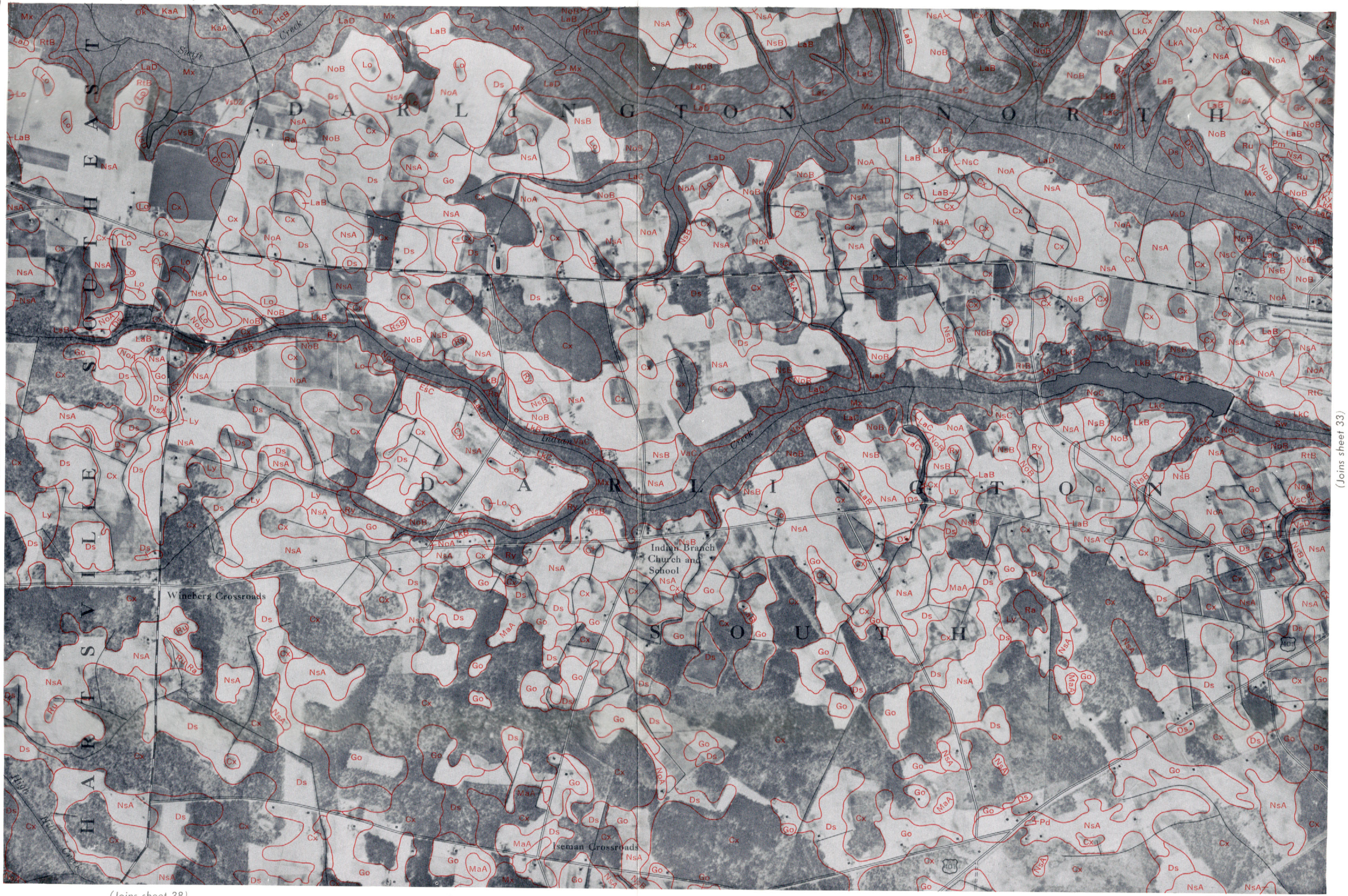
(Joins sheet 31)



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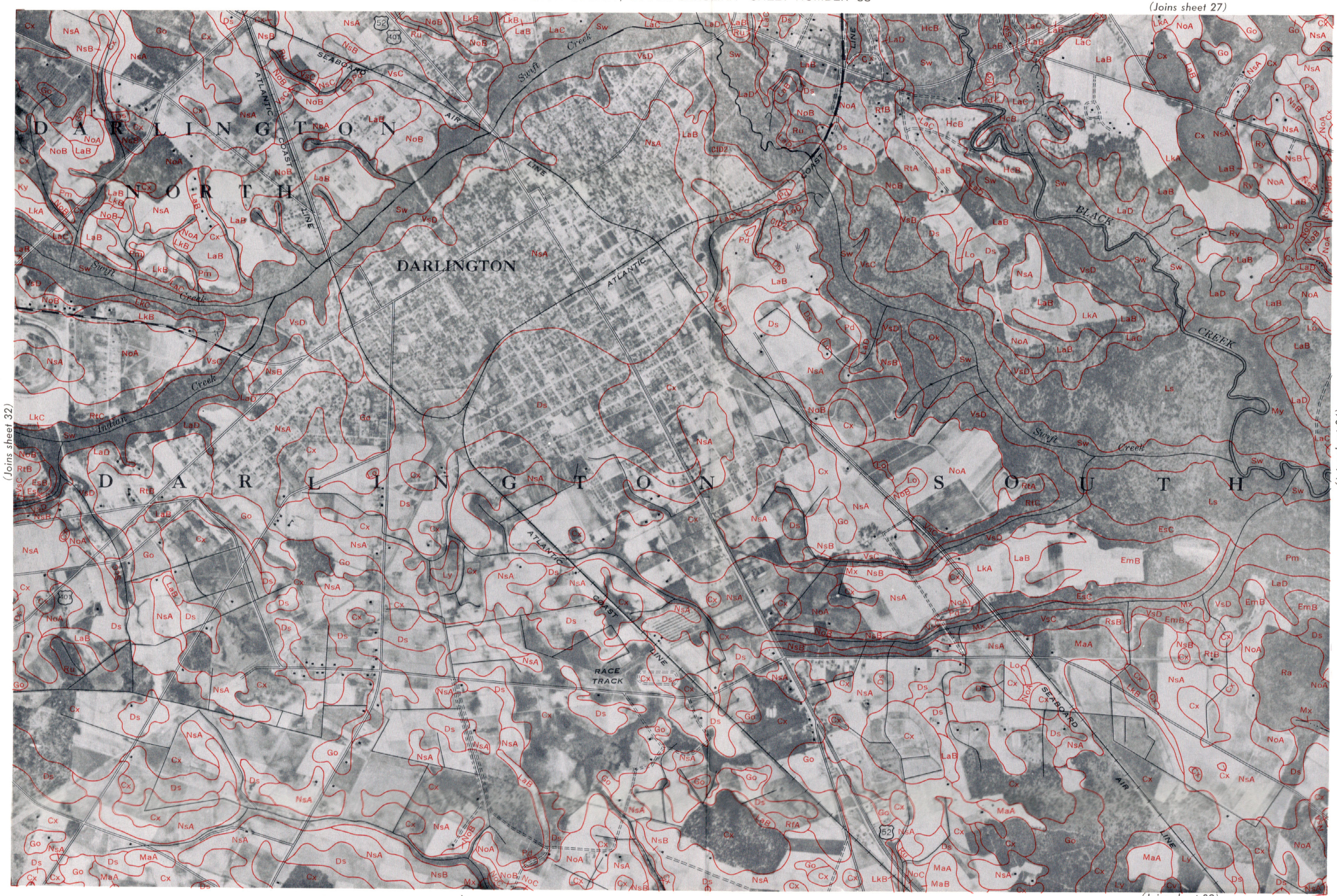
(Joins sheet 38)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 27)

(Joins sheet 32)



(Joins sheet 34)

(Joins sheet 39)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

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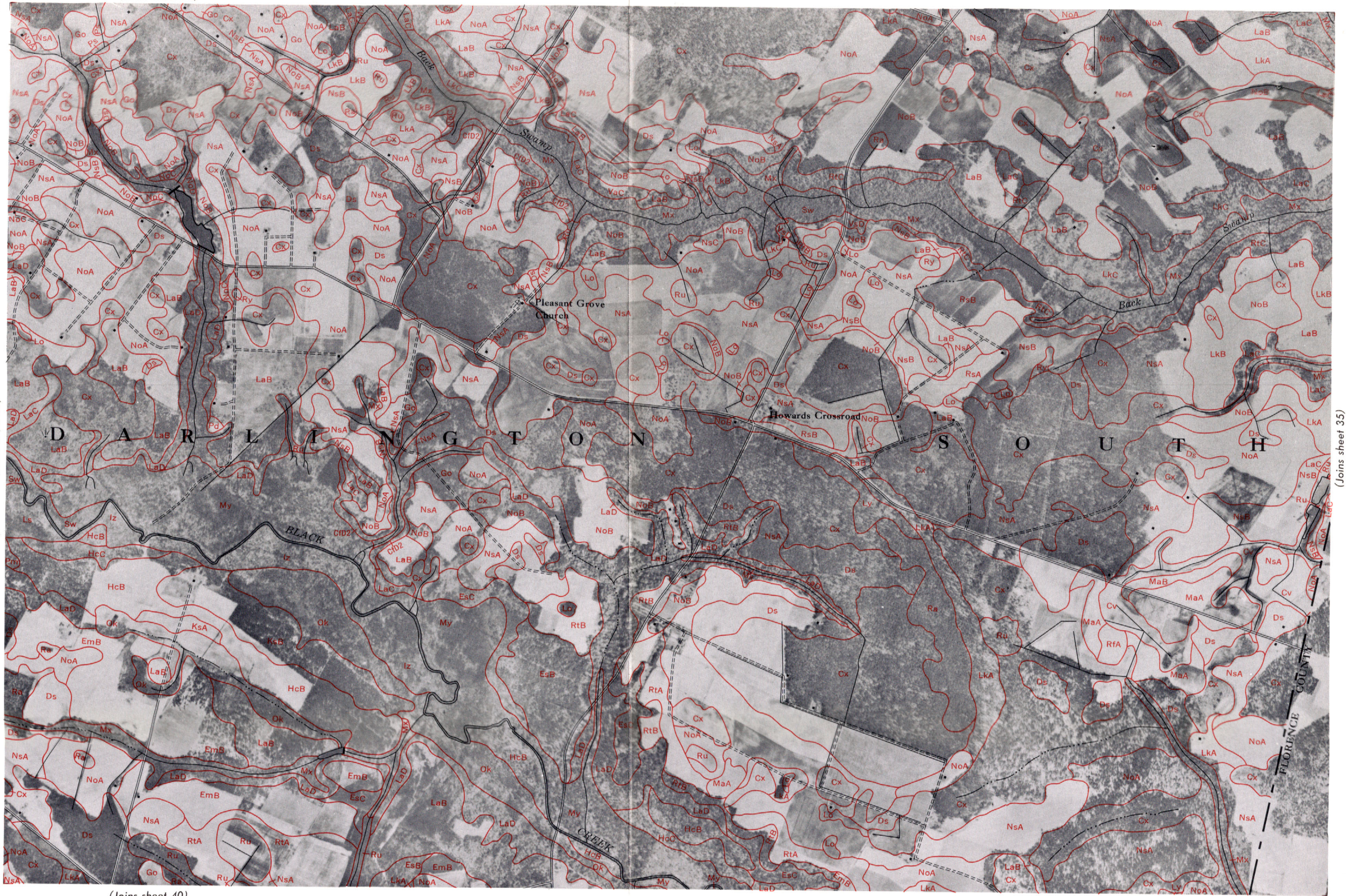
(Joins sheet 28)

N

(Joins sheet 33)



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(Joins sheet 40)

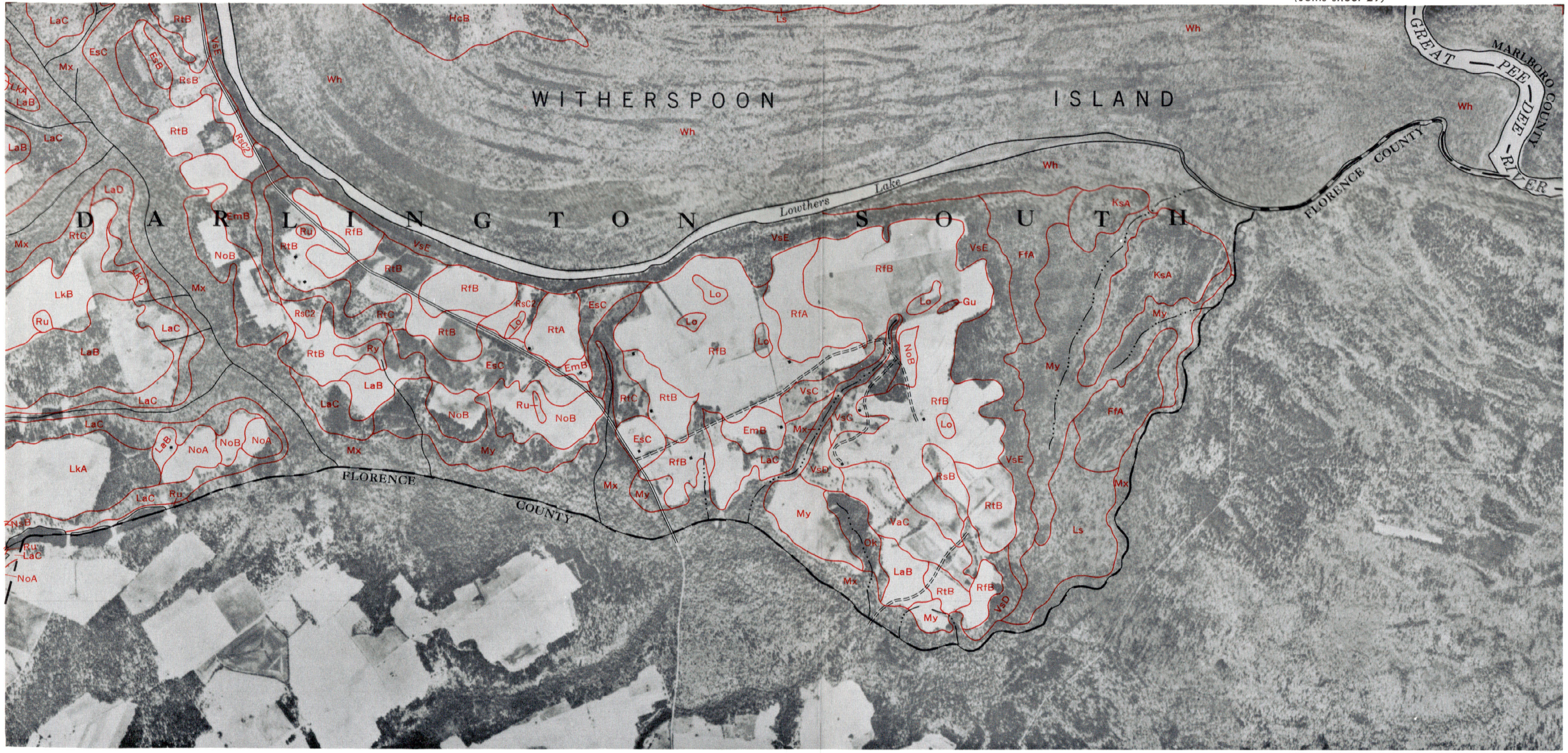
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 29)

35



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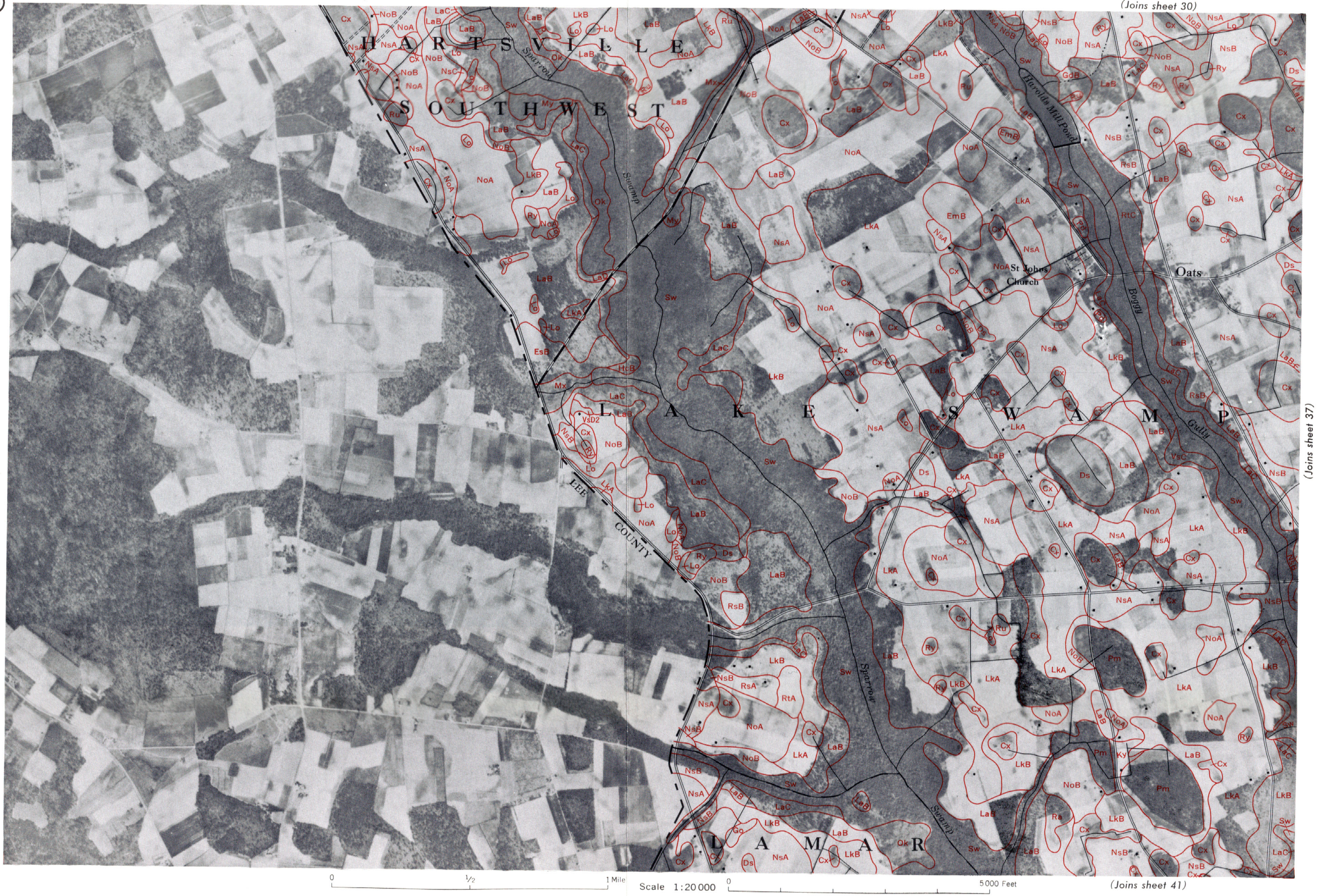
0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 36



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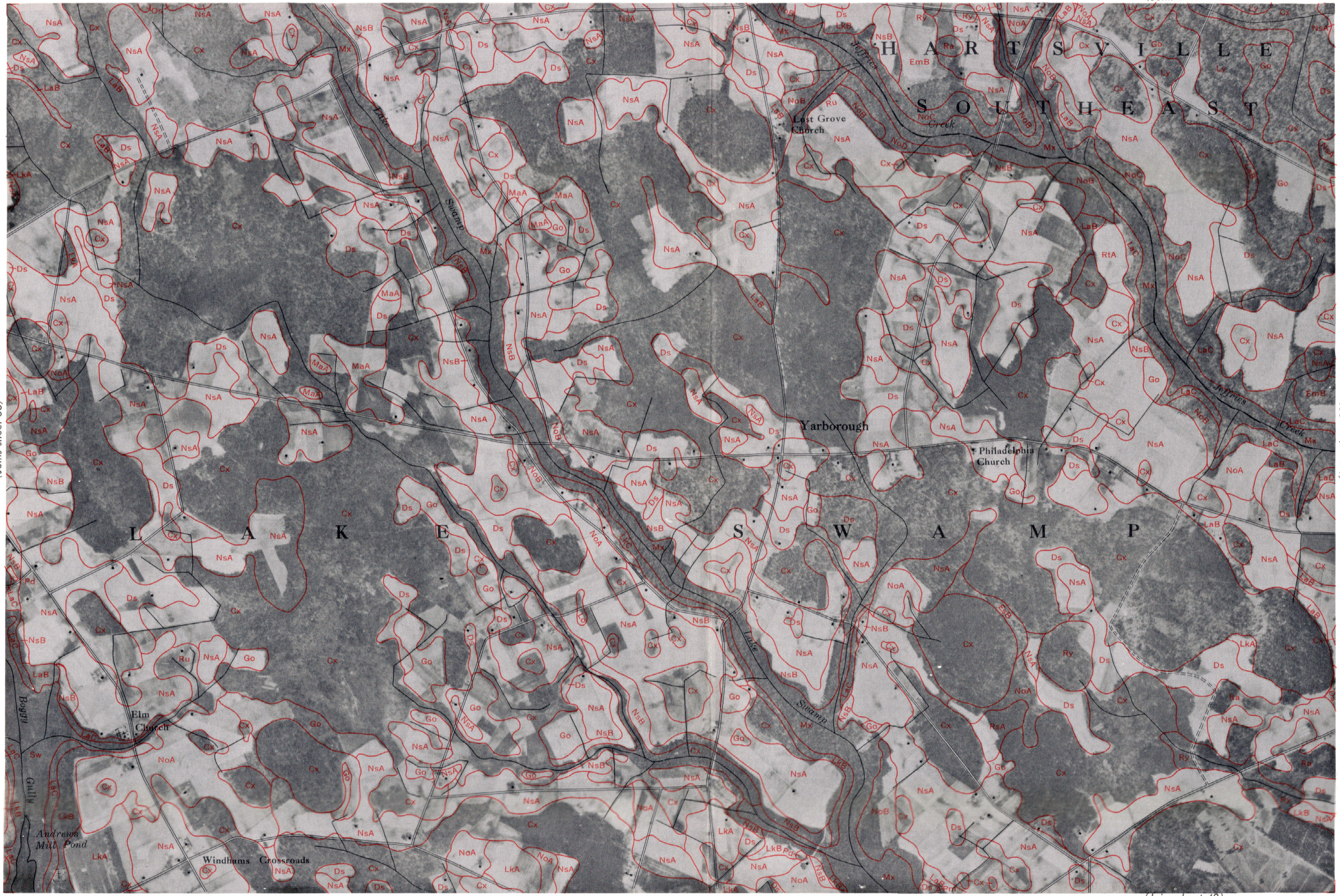

(Joins sheet 36)

(Joins sheet 38)

(Joins sheet 42)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

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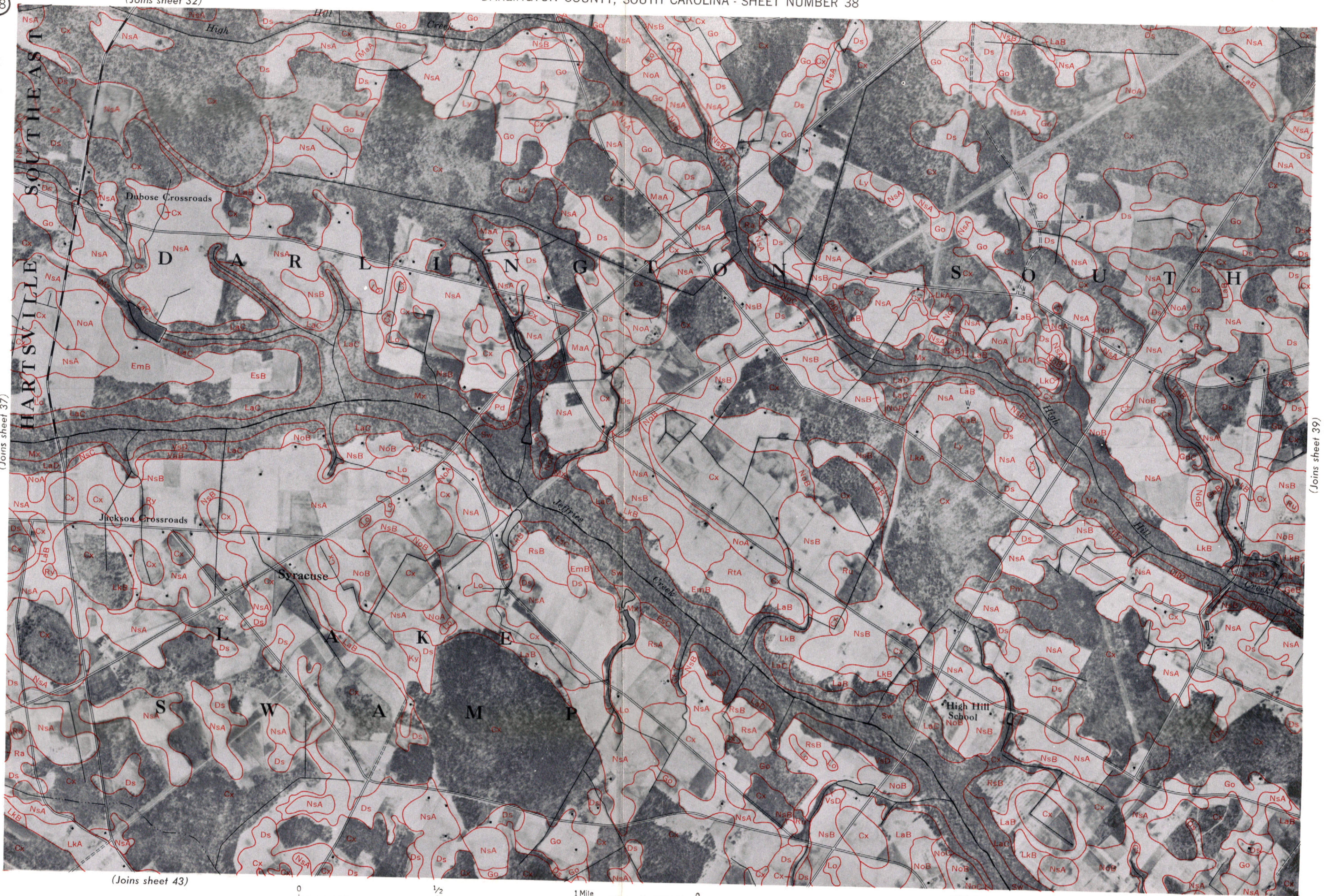
(Joins sheet 32)

(Joins sheet 37)



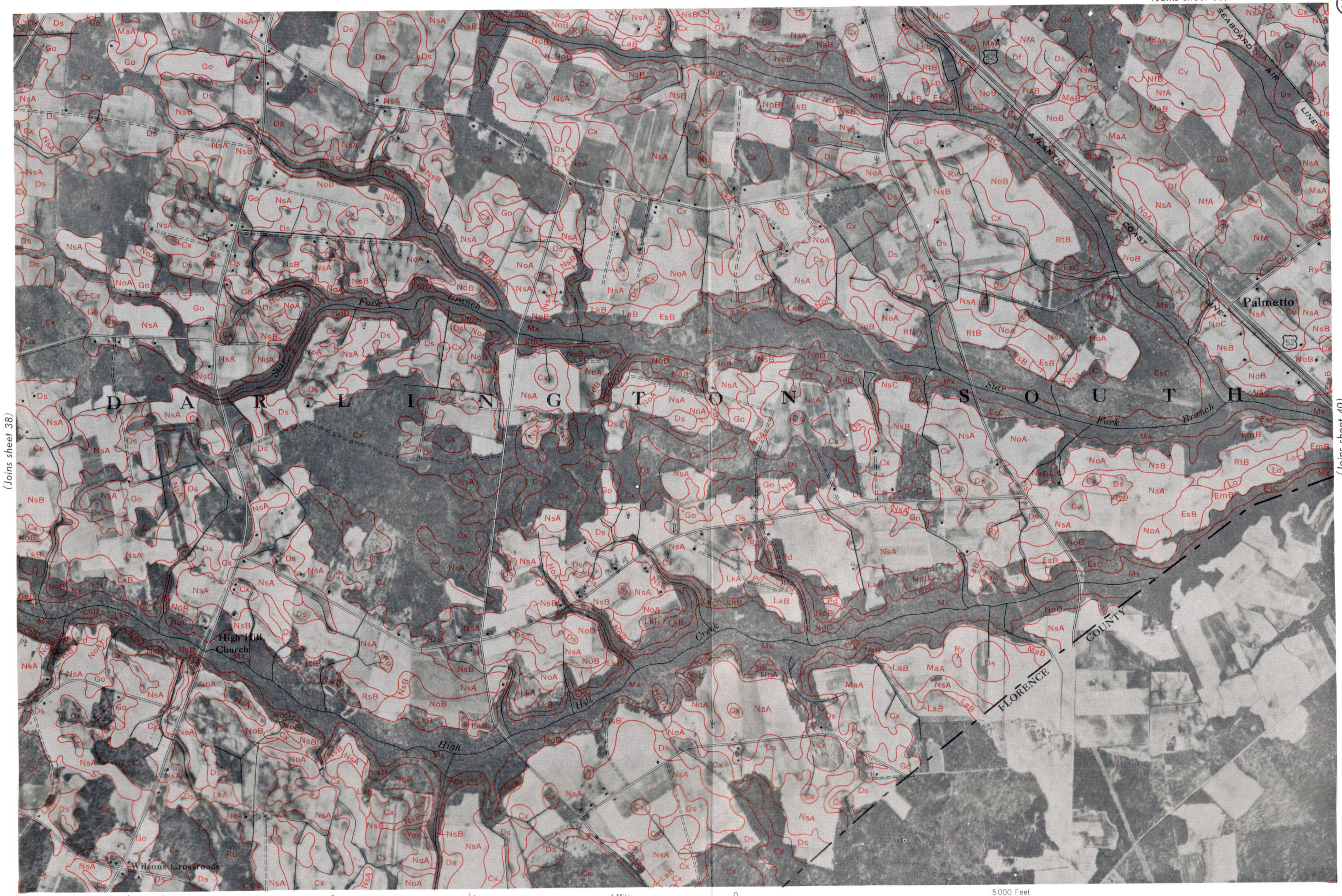
(Joins sheet 39)

(Joins sheet 43)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 33)

(Joins sheet 38)



(Joins sheet 40)

(Joins sheet 44)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

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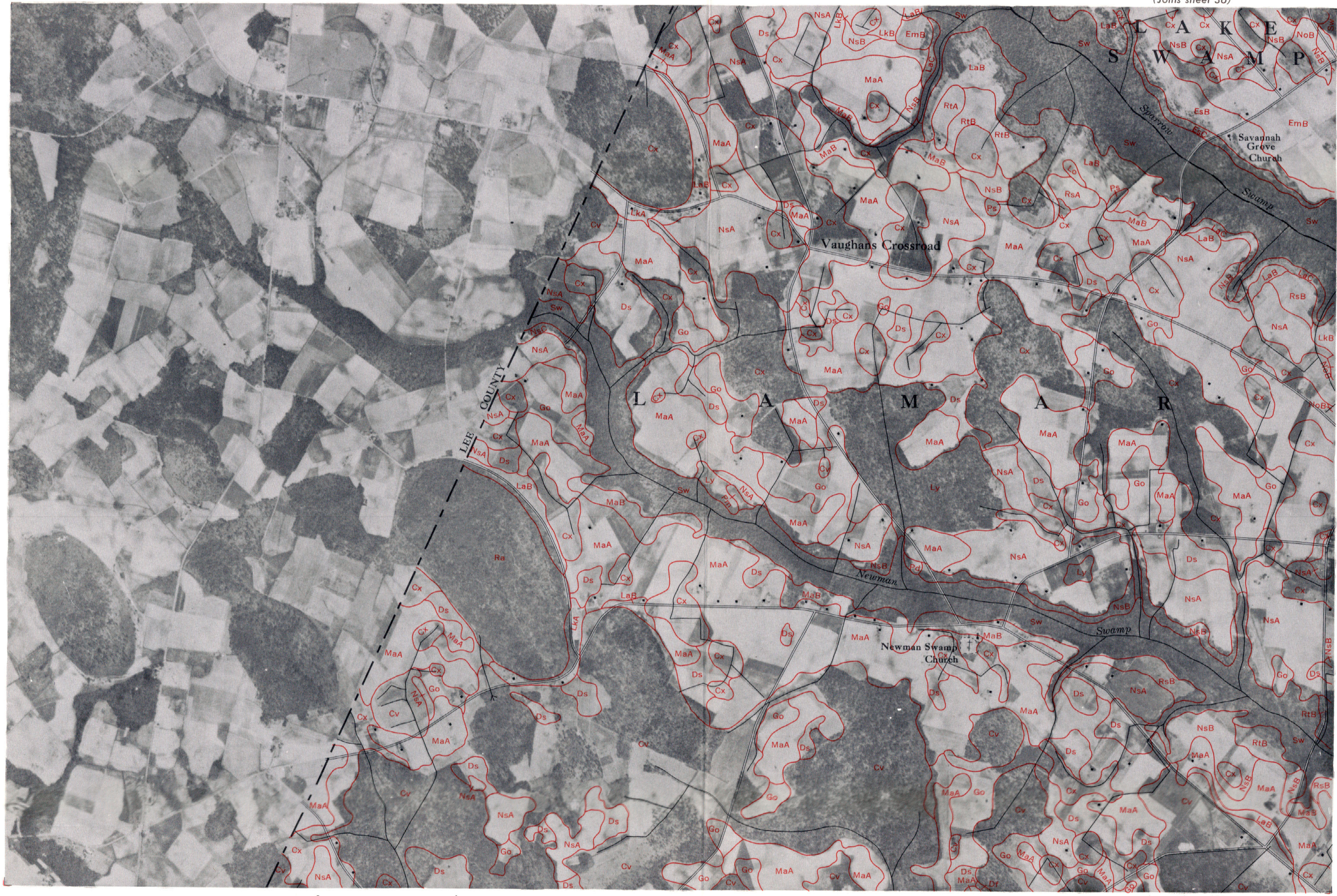
(Joins sheet 34)

(Joins sheet 39)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

41

(Joins sheet 36)



(Joins sheet 42)

(Joins sheet 45)

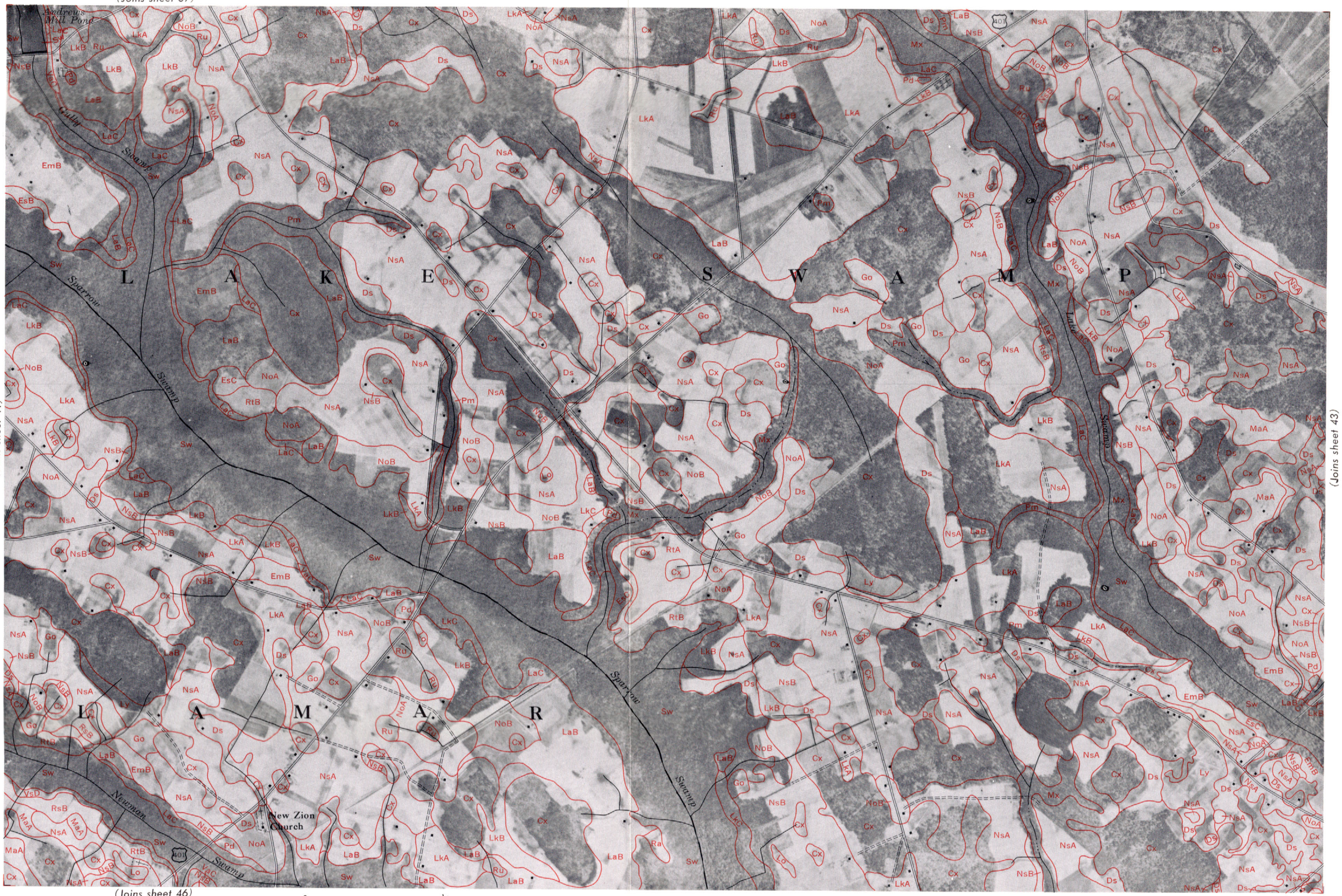
0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This is one of a set of maps prepared by the Soil Conservation Service, U. S. Department of Agriculture, for a soil survey report of this area. For information regarding the complete soil survey report, write the Soil Conservation Service, U. S. Department of Agriculture, Washington 25, D. C. This map compiled from aerial photographs flown in 1957.

DARLINGTON COUNTY, SOUTH CAROLINA - SHEET NUMBER 42

(Joins sheet 37)

(Joins sheet 41)



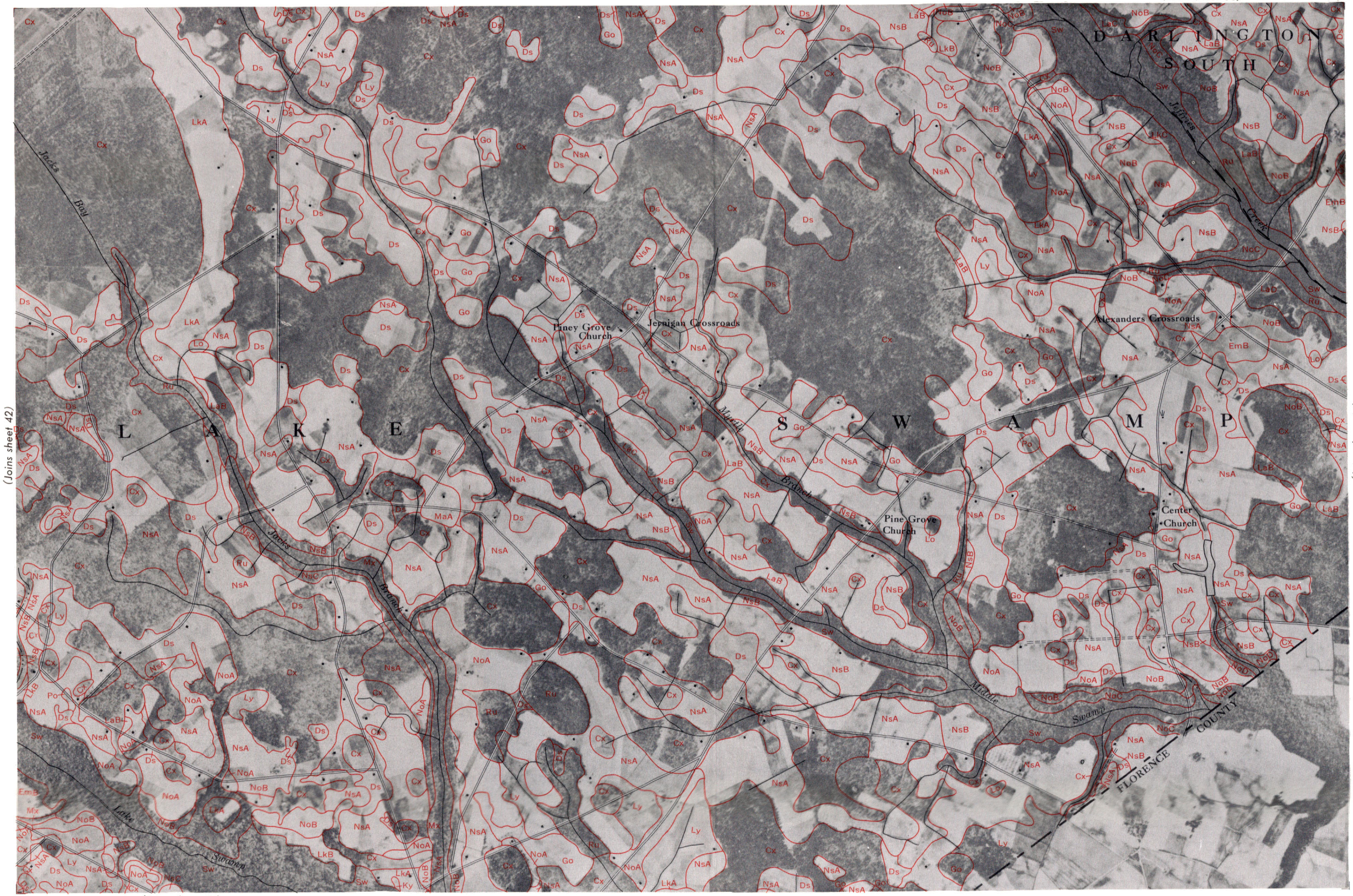
(Joins sheet 43)

(Joins sheet 46)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 38)

(Joins sheet 42)



(Joins sheet 44)

(Joins sheet 47)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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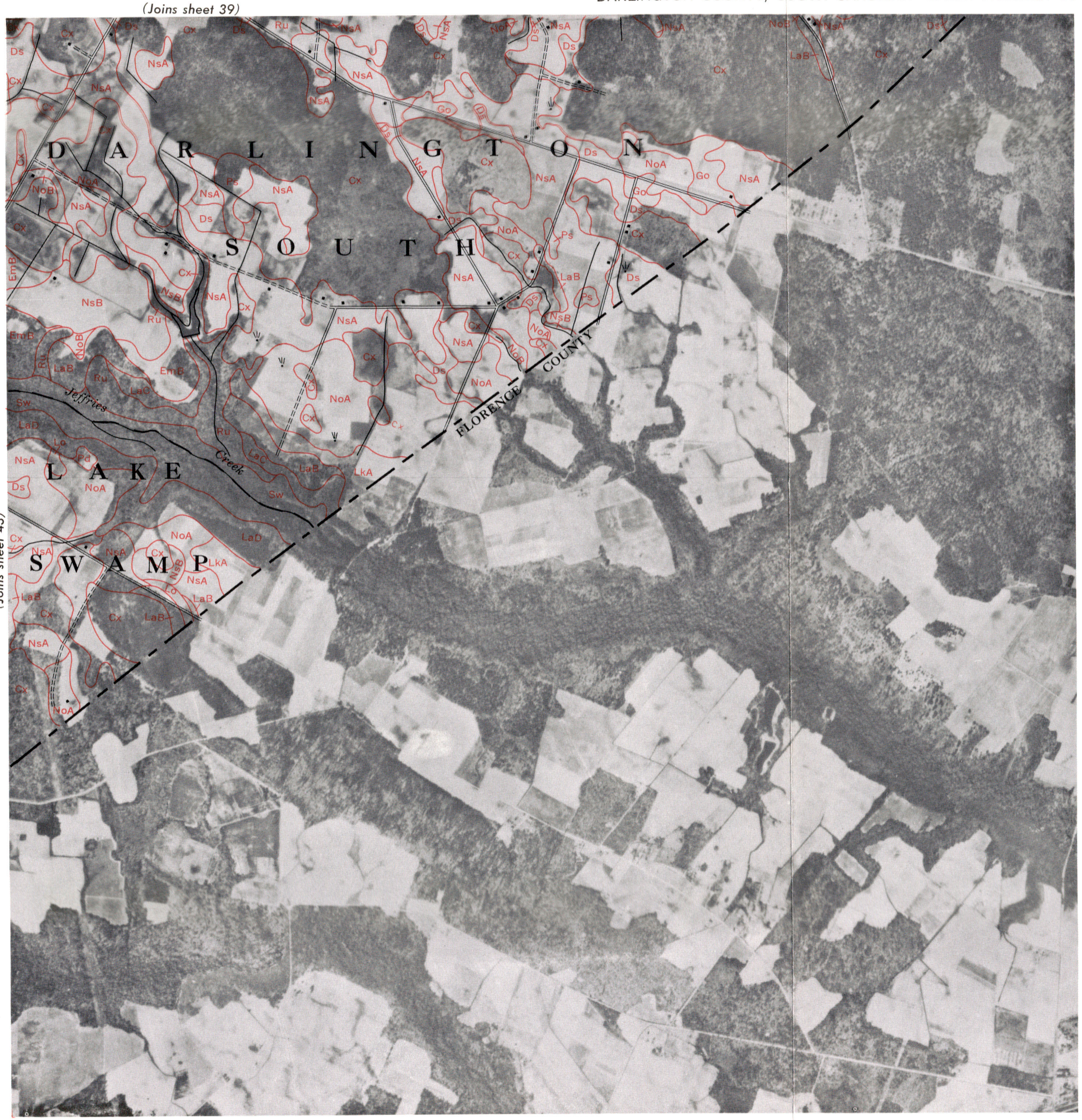
44

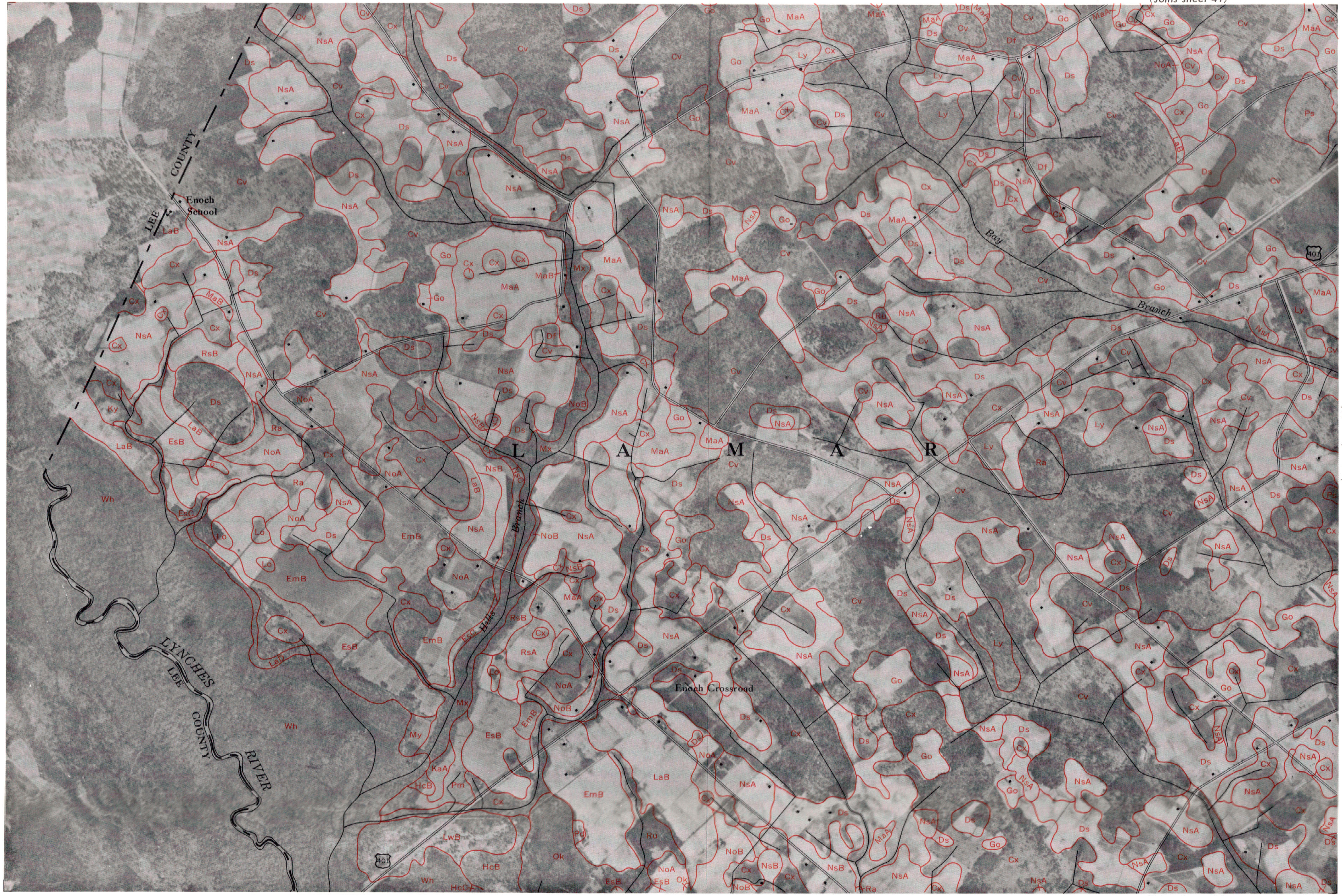


Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

(Joins sheet 41)



(Joins sheet 46)

(Joins sheet 48)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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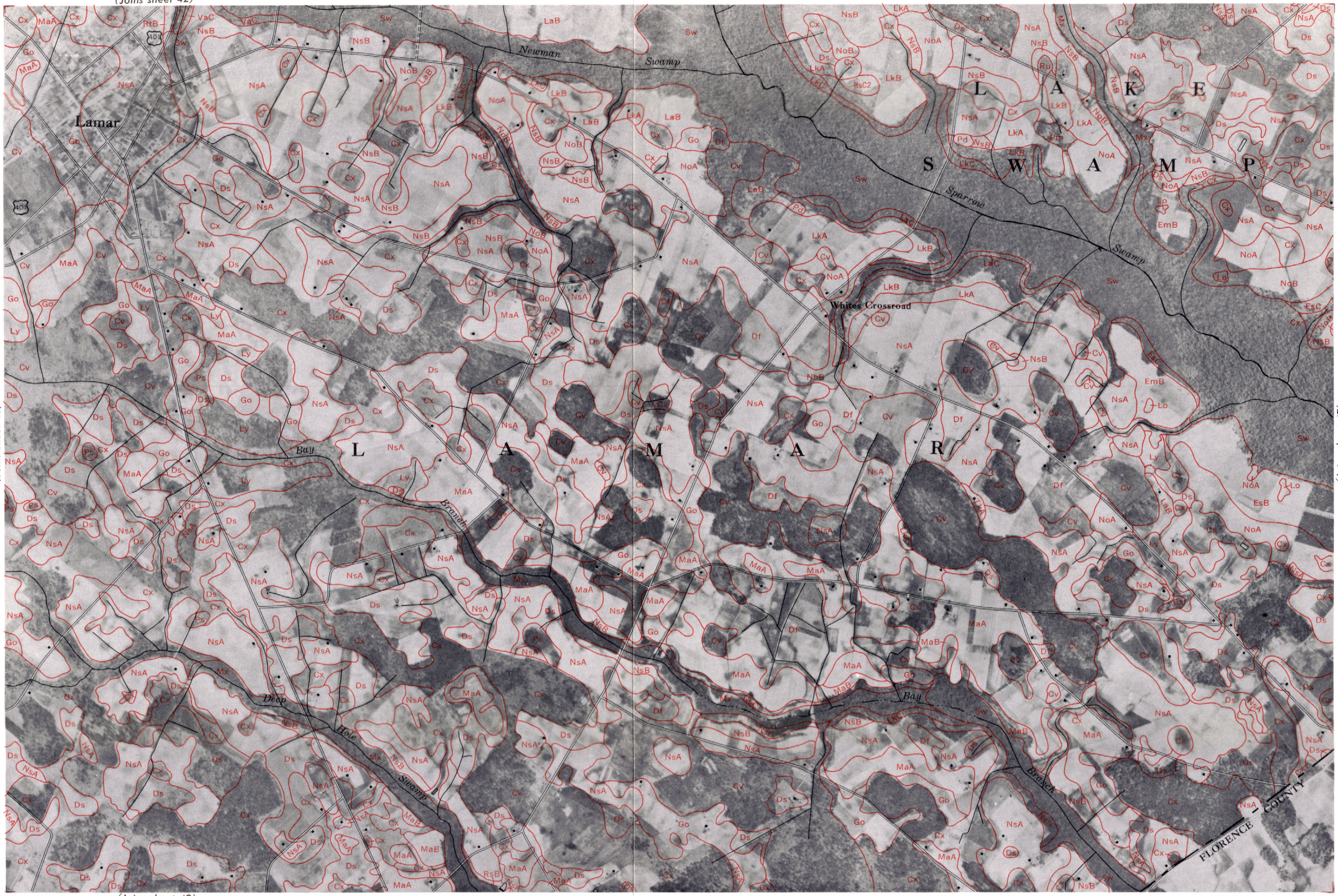
(46)

(Joins sheet 42)



(Joins sheet 45)

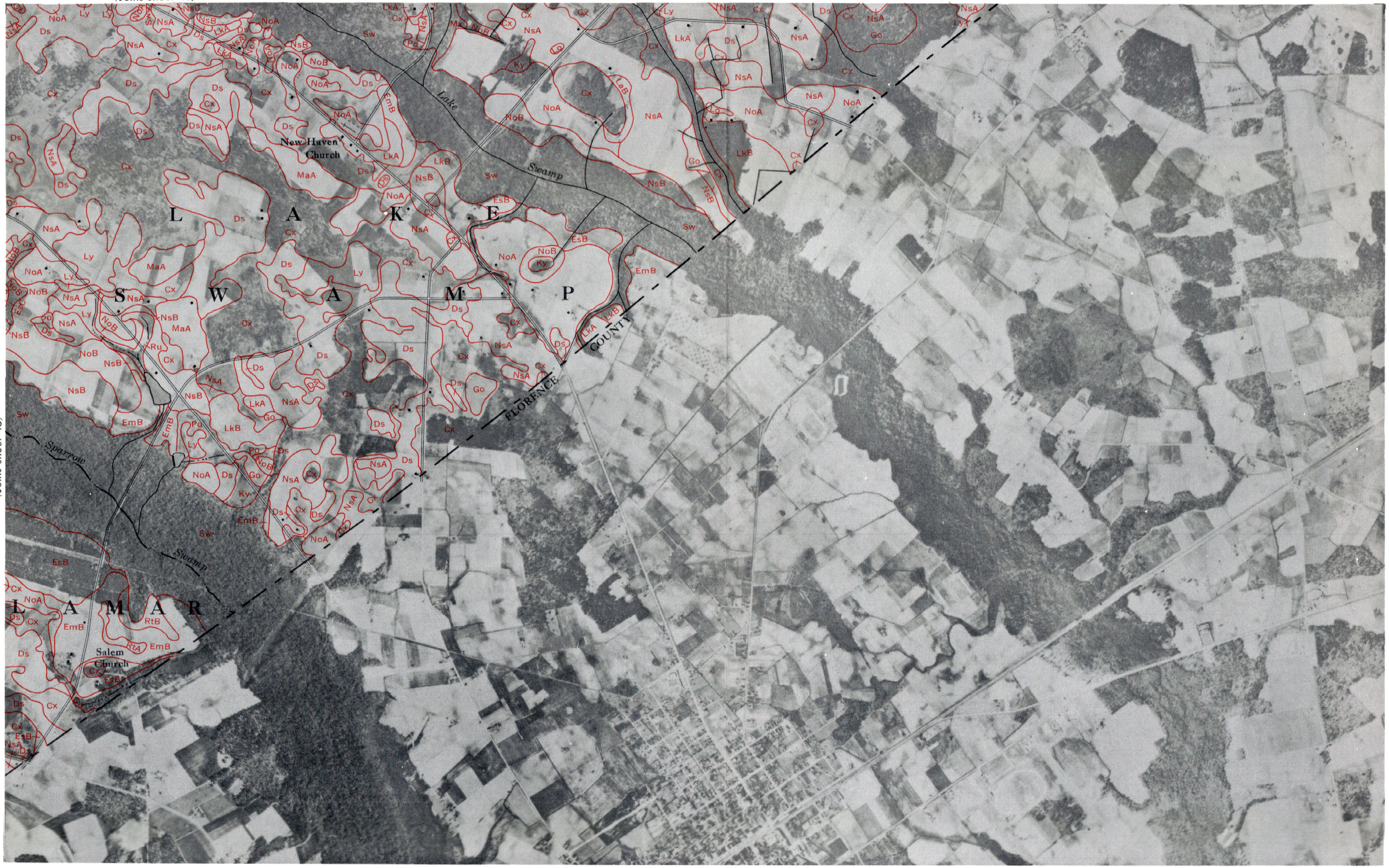
(Joins sheet 47)

(Joins sheet 49)

Scale 1:20 000 — 0, 1/2, 1 Mile — 0, 5000 Feet

(Joins sheet 43)

(Joins sheet 46)

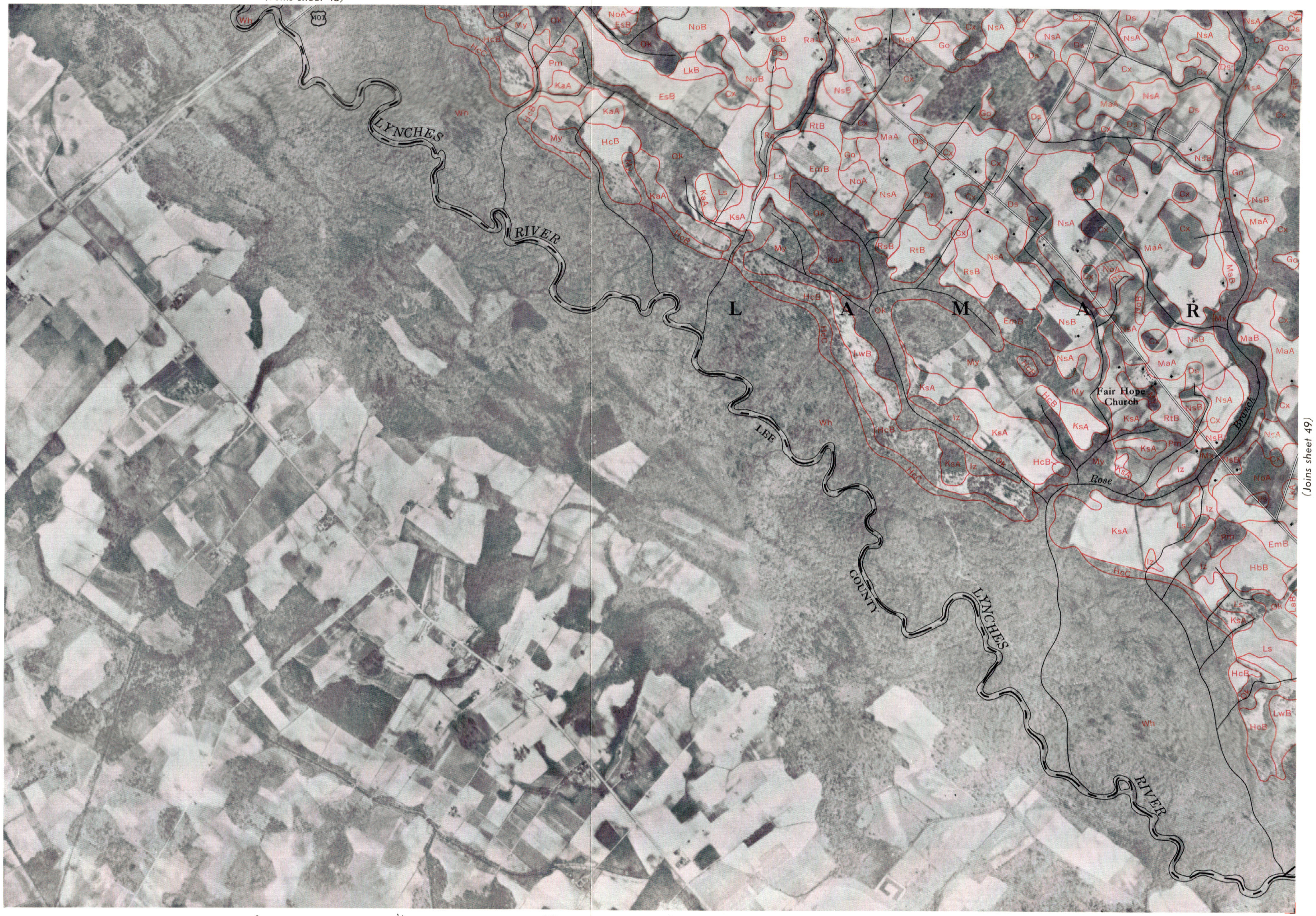


This is one of a set of maps prepared by the Soil Conservation Service, U. S. Department of Agriculture, for a soil survey report of this area. For information regarding the complete soil survey report, write the Soil Conservation Service, U. S. Department of Agriculture, Washington 25, D. C. This map compiled from aerial photographs flown in 1957 .

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

N

(Joins sheet 45)



(Joins sheet 49)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 46)

(Joins sheet 48)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

This is one of a set of maps prepared by the Soil Conservation Service, U. S. Department of Agriculture, for a soil survey report of this area. For information regarding the complete soil survey report, write the Soil Conservation Service, U. S. Department of Agriculture, Washington 25, D. C. This map compiled from aerial photographs flown in 1957.